The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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MR. JAMES H. CROFTS, STOCK AND SHARE BROKER, AND MINING SHARE DEALER,
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BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Banks, Bonds (Foreign and Colonial), Railways, Miscellaneous, Insurance, Assurance, Telegraph, Shipping, Canal, Gas, Water, and Dock Shares.

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BUSINESS in COLLIERY and IRON Shares, and in the principal WAGON and MANUFACTURING COMPANIES of the NORTH of ENGLAND and SCOTLAND.

BUSINESS in all the principal COTTON SPINNING Shares.

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MINES INSPECTED.

BANKERS: CITY BANK, LONDON; SOUTH CORNWALL BANK, ST. AUSTELL.

SPECIAL DEALINGS in the following, or part:—

15 Chapel House, £2 17 6	50 Javali, 8s.	50 Parys Moun., 7s. 3d.
150 Chontales, 12s. 6d.	25 Leadhills, £2 18s. 9d.	30 Rookhope, 14s.
10 D'Eresby Consols.	75 Llanrwst.	15 Richmond, £9¼.
20 East Van, £3.	50 North Laxey, 2s. 3d.	50 Van Consols, 10s.
40 Flagstaff, 12s.	75 Penstruthal, 4s. 3d.	50 W. Tankerville, 3s.
25 Hultafall, £3¼.	80 Pestarena, 4s. 9d.	

SPECIAL BUSINESS in MORFA DU Shares.

*** SHARES SOLD FOR FORWARD DELIVERY (ONE, TWO, OR THREE MONTHS) ON DEPOSIT OF TWENTY PER CENT.

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SPECIAL BUSINESS in the above, and Fortnighty Accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

RAILWAYS—HOME AND FOREIGN.—SPECIAL BUSINESS in the above, and Fortnightly Accounts opened on receipt of the usual cover.
JAMES H CROFTS, 1, FINCH LANE, LONDON.

MISCELLANEOUS AND TRAMWAY SHARES.—SPECIAL BUSINESS in—

MISCELLNAEOUS.	Royal Aquar. (Westm.)	North Metropolitan Tramways.
Alhambra Palace.	London Steam-boat.	Tramway Union.
Brighton Aquarium.	Lawes Chemical.	
	Globe Telegraph.	

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Bankers: City Bank, London; South Cornwall Bank, St. Austell.
ESTABLISHED 1842.

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ESTABLISHED 1867.

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40 Almada, 7s.	40 East Caradon, 7s. 9d.	40 Port Phillip, 10s. 6d.
10 Aberllyn.	30 Frontino, £2 16s. 3d.	70 Pandora.
30 Blue Tent, £2¼.	25 Flagstaff, 10s. 6d.	100 Pestarena, 5s. 6d.
25 Birdseye Creek, 14s 6d	150 Gold Run.	10 Roman Grav., £7½.
20 Colorado, £3 13s. 6d.	40 Glenroy, 12s. 6d.	50 Rookhope, 13s.
150 Cedar Creek, 4s. 3d.	5 Great Laxey, £18.	15 Richmond, £9¼.
25 Cambrian.	50 Hultafall.	10 South Condurrow.
100 Chontales, 12s.	40 Kapanga, 33s. 6d.	20 Tankerville, £3¼.
50 Don Pedro, 11s.	25 Llanrwst.	100 Tyn-y-Fron.
3 Dolcoath, £24½.	30 Leadhills, £2.	10 Van, £18½.
70 Derwent, 21s.	50 Marke Valley, 14s.	20 Wh. Grenville.
15 Devon Consols, £2¾.	25 New Quebrada, 36s.	50 W. Godolphin, 6s. 6d.
20 Eberhardt, £4¾.	10 Pateley Bridge, £4¾.	200 Yorke Peninsula.
	100 Parys Mount., 6s. 6d.	

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75 Alamillos, 27s. 6d.	75 East Caradon, 9s.	10 London Trams, £14½.
40 Blaen Caelan, £3¾.	50 Frontino and Bolivia, £2 16s., ex div.	5 ditto 6 per cent. Preference, £13½.
100 Bodidris.	15 Grogwinion, £3.	65 Ladywell Pref., 12s.
200 Bedford United, 6s.	200 Gold Run, 5s. 9d.	4 Lisburne.
50 Colorado, £3¾.	50 Gawton.	20 Monydd Gorddu.
100 Cambrian.	50 Hudson Bay, £11½.	2 Imperial Continental Gas, £171½.
70 Cakemore (£3 paid).	5 Herodsfoot, £3¾.	25 Penn nt.
40 Chapel House.	25 Hornachos, £13.	20 St. Harmon.
50 Caron, £2¾.	50 Hultafall.	50 Santa Barbara.
100 Court Grange, 17s.	45 Hughes' Locomotive.	3 So. Caradon, £52½.
61 Copiapo	35 Red Rock, £2¼.	20 South Frances.
125 Don Pedro, 10s. 6d.	20 Roman Gravels.	25 W. Wye Valley, £2¾.
80 Devonport and Tiverton Brewery.	75 Native Guano.	20 Wye Valley, £2¾.
5 Dolcoath, £3.	100 I.X.L.	
100 Exchequer.	150 Javali.	

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D'Eresby Mountain.	Tankerville, £3¼.	Colorado, £3 13s.
East Van, £2¾.	Van, £18½	Chontales, 13s.
Grogwinion, 44s.	Wye Valley.	Don Pedro, 10s. 6d.
Great Laxey, £18.	West Chiverton.	Eberhardt, £4¼.
Leadhills, 42s. 6d.		Flagstaff, 11s. 6d.
Llanrwst, 36s.	General Credit.	Frontino, £2¾.
Morfa Du.	Telegraphic Construct,	Hultafall, £3 2s. 6d.
Pandora, 12s. 6d.	North Metropolitan.	Javali, 7s. 9d.
Penstrutha, 4s. 3d.	London Steam-boat.	Last Chance, 17s. 6d.
Parys Mountain, 5s. 6d.	Peninsular and Orien.	Kapanga, 31s. 6d.
Pateley Bridge, £3¾.	Provincial Tram.	Port Phillip, 11s. 6d.
Roman Gravels, £7½.	Wolverhampton Tram.	Richmond, £9¼.
Rookhope, 13s. 6d.	London (Limited).	

BANKERS: LONDON AND WESTMINSTER.

FERDINAND R. KIRK, STOCKBROKER,
5, BIRCHIN LANE, E.C.

FOREIGN MINING.—A large business continues to be done in Richmond, Eberhardt, Colorado, New Quebrada, New Zealand Kapanga, Frontino, and Chontales, both for cash and for fortnightly settlement. Some of these are going higher.
COLLIERIES.—Buyers or sellers of Bilson and Crump, Newport Abercarn, Cardiff, and Chapel House should apply for a quotation.
ATTENTION is invited to Port Phillip, Don Pedro, Sierra Buttes, Javali, Gold Run, and United Mexican.
MISCELLANEOUS.—Several securities are now well worth buying. Particulars on application.
"THE WEEK."—A SEPARATE EDITION from that which appears in the *Mining Journal* is published every Wednesday evening, containing "Notes and Hints on the Stock Markets," with Closing Prices. May be had on application.
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See this week's report of SOUTH D'ERESBY. The shares are rising fast in value.
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Have FOR SALE the FOLLOWING SHARES at net prices:—

20 Assheton.	20 Frontino, £2 17s. 6d.	10 Pateley Bridge, £4.
30 Aberdaunant, 5s. 3d.	10 Flagstaff, 13s.	15 Pant-y-Mwyn, £5 5s.
15 Blue Tent, £2¾.	30 Grogwinion, £2¾.	25 Parys Mount., 5s. 6d.
50 Cedar Creek, 8s.	10 Gt. Laxey, £18¼.	50 Penstruthal, 4s. 6d.
25 Chontales, 12s.	25 Gold Run.	50 Plynlimmon, 3s. 3d.
10 Chapel House, £3½.	10 Gorsedd and Merllyn.	15 Richmond, £9¼.
20 Denbighshire, £1 7s 6	10 Hultafall, £3¼.	10 Roman Gravels, £8.
5 D'Eresby Con., £9 15s	10 N. Zealand Kapanga, £1 1s. 6d.	20 South Frances, £5¼.
50 Don Pedro, 11s.	50 No. Laxey, 3s. 3d.	10 Tecoma, 4s.
20 East Van, £2 17s. 6d.	10 New Quebrada, £1¾.	15 W Wye Val, £2 10s.
5 Eberhardt, £4 10s.	15 Pandora, 13s.	10 Yorke Peninsula.

Stocks and Shares purchased, sold, or exchanged at close market prices free of commission, either for cash or account.
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	Buyers.	Sellers.		Buyers.	Sellers.
Aberllyn	£ 10	£ 11	New Quebrada	£ 1⅝	£ 1¾
Argentine	2s. 6d.	5s.	New Zealand Kapanga	1⅛	1⅛
Colorado	3½	3¾	Pant-y-Mwyn	4⅞	5¼
Chontales	10s. 6d.	12s. 6d.	Parys Mountain	4s.	6s.
Clementina	1	1¼	Pateley Bridge	3¾	4
Denbighshire	1¼	1½	Penstruthal	4s.	5s.
Devon Great Consols	9s.	11s.	Plynlimmon	1s. 6d.	2s. 6d.
Don Pedro	4¼	4½	Richmond	9	9¼
Eberhardt	5s.	6s.	Roman Gravels	7¼	7¾
East Caradon	3	3½	Rookhope	12s 6d	15s.
East Van	2s. 6d.	5s.	South Condurrow	10¼	11
Exchequer	10s.	12s.	South Frances	4¾	5
Flagstaff	2½	2⅞	Tecoma	2s.	4s.
Frontino	10s.	12s. 6d.	Tankerville	3	3¼
Glenroy	10s.	12s.	Tincroft	6½	7
Glyn	2¼	2½	Van	17	18
Grogwinion	17½	18½	West Chiverton	5	6
Great Laxey	2¾	3¼	West Wye Valley	2	2½
Hultafall	¾	1	W. Grenville	1¾	2
Last Chance	2	2½	Wye Valley	1¾	1⅝
Leadhills	3¼	4	Yorke Peninsula	3s. 6d.	5s.
Mellanear					

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100 Aberdaunant.	60 Flagstaff, 11s. 3d.	50 Port Phillip, 12s.
30 Bodidris, 25s.	10 Grogwinion, £2¼.	50 Parys Mountain, 5s 6d
20 Birdseye, 16s.	20 Glenroy, 11s. 6d.	10 Pateley Bdge., £4.
20 Blaen Caelan, £4 1s 3d	20 Gorsedd & Mer. £4½.	100 Penstruthal, 4s. 6d.
30 Cambrian, £3 11s. 3d.	25 Hultafall, £3 2s. 6d.	10 Richmond.
75 Chontales, 12s. 6d.	30 Last Chance. 17s. 6d.	10 Rookhope, 14s.
20 Chicago, £1 2s. 6d.	20 Leadhills, £2 7s. 6d.	10 Roman Grav., £7½.
40 Colorado, £3¾.	25 Javali. 9s.	15 Tankerville, £3 5s.
20 Court Grange, 17s. 6d	20 Llanrwst.	40 Tyn-y-Fron.
5 Cape Copper, £31.	20 Marke Valley, 11s. 6d	4 Van, £18.
75 Don Pedro, 11s.	40 Morfadu. 15s.	5 West Chiverton, £5¼.
20 East Van, £1 17s. 6d.	25 N. Zea. Kap., £1 12s 6	5 Wh. Grenville, £1¾.
10 Eberhardt, £4 7s. 6d.	20 New Quebrada, £1¾.	40 W. Wye Valley, £2 8s.
100 Exchequer, 4s.	25 Pandora, 15s.	25 Wye Valley, £1 12s 6d
20 Frontino, £2 16s. 3d.	20 Pant y-Mwyn, £5.	100 Yorke Peninsula, 4s. 9

Shares bought and sold at net prices. Telegrams promptly attended to.

MR. CHARLES THOMAS,
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100 Aberduanant, 5s.	25 Frontino, £2¾.	30 Parys Mount., 5s. 6d.
50 Argentine, 4s.	30 Glenroy, 12s. 6d.	10 Pateley Bridge, £4.
30 Assheton,	10 Gorsedd and Merllyn, £4 12s. 6d.	100 Penstruthal, 4s. 3d.
45 Almada, 7s. 6d.		20 Pant-y-Mwyn.
20 Birdseye Creek, 17s.	30 Grogwinion, £2¼.	30 Port Phillip, 11s. 6d.
50 Bodidris, 25s.	15 Gt. Laxey, £18.	50 Plynlimmon, 3s.
0 Blue Tent, £2¼.	30 Gold Run.	10 Richmond, £9¼.
100 Cedar Creek, 4s. 9d.	5 Glasgow and South-Western Ordinary Consolidated 4½ p. cent., £95½.	5 Roman Gravels, £7¾.
10 Colorado, £3½.		10 South Aurora, 3s. 9d.
50 Chontales, 11s. 9d.		5 So. Frances, £5.
100 Central Van.		10 Tecoma, 3s. 6d.
50 Cardiff & Swan., 25s.	15 Hultafall, £3¼.	5 Tankerville, £3¾.
10 Chapel House, £3.	1 London Steam boat (7 per cent. debenture), £118.	20 Thorp's Gawber Col., offer wanted.
30 Denbighshire, £1¾.		10 Van, £18.
10 D'Eresby Con., £10.	100 North Laxey, 3s.	10 Wheal Newton, o. wtd
100 Don Pedro, 10s. 6d.	10 N. Zealand Kapanga, £1¾.	10 W. Wye Val., £2¾.
10 Eberhardt, £4 7s. 6d.		5 Wye Valley, £1½.
20 East Van, £2¾.	10 New Quebrada, £1¾.	30 Yorke Peninsula.
10 Flagstaff, 12s. 6d.	30 Pandora, 13s.	

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50 Glyn, 11s.	50 Hornachos, £14.	50 Temple.
30 Gorsedd & Merl., £4.	100 Cambrian, £2¾.	25 East Van.
50 Hultafall, £3¾.	50 Morfa Du, 15s.	100 Tyn-y-Fron.
	20 Pateley Bridge, £4¼.	

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Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES.* — No. LXXXVIII.

BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.,

Mining Engineer, Wakefield.

(Formerly Student at the Royal Bergakademie, Clausthal).

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SECTION V.

HYDRAULIC MORTAR† contains in general as essential constituents, silica, lime, and clay, the latter, however, according to Fuchs, is not essential; many include the clay in the silica, or in the place of clay in addition to the silica an aluminate. In any case, however, it seems certain that the silicate does not act as quartz, but in a combined state, from which the silica is freed when the silicate of the clay is subjected to a certain degree of heat during the burning. Besides lime, magnesia is sometimes present; alkalies are said to increase the hydraulic properties, probably because they exert some influence on the silica during the burning. According to Rivot and Chatoney a silicate of lime is formed on burning limestone, which contains silica in the form of fine quartz; when alumina is present an aluminate of lime is also formed, which aluminate is said to be disadvantageous.

TRASS MORTAR is a mixture of slaked lime with substances which contain the silica in a suitable condition. Such substances occur in nature as volcanic tuff, to which belongs the puzzolane (a friable mass), obtained from the neighbourhood of Naples, and which was well known to the Romans; santorin earth, duck or tuffstone, found in Brohlthal and Nettethal, near Andernach, which when ground forms trass. Similar deposits are to be found at Dui-dorf near Bonn, at Monheim on the Danube in Bavaria, in the North of Iceland, &c. Such substances can also be artificially prepared by burning materials containing silica; and it is, besides, not necessary to use substances containing the above mixture for this purpose, powdered bricks and riddled ashes. At Brohlthal the deposit of duck stone is from 14 ft. to 50 ft. in thickness, and with the superposed covering from 60 ft. to 100 ft. thick; it is obtained by quarrying and turning over the covering, since underground working of the deposit is forbidden. The covering of the deposit at Nettethal is only from 8 ft. to 14 ft. thick. The crushing of the duck stone is effected in stamp mills with sieves before the stamps, or between rollers, or in mills similar to ordinary mortar mills. Where a large quantity is used it is advisable to obtain the material uncrushed, and to crush it at the place where it is to be used. The grinding is continued till the material is finer than the ordinary grains in sandstone used for building, though the crushing must not be carried so far as to convert the material into dust. Weathering and transport of the crushed stone are said to be disadvantageous, on account of the grains losing their sharp edges, and becoming more rounded; also the material should be preserved from rain and moisture, since damp duck stone must be dried before it can be used for the above purpose.

Trass mortar consists either of trass and lime alone, or a portion of the trass is replaced by powdered bricks, for which, however, only well burnt bricks are suitable; with this mixture, however, great care is required, owing to the great difference in the composition of various bricks, and the various degrees of heat to which the brick had been subjected. The quality of the lime is of the most importance in determining the proportions of the mixture. In Westphalia the general proportion is two volumes of trass, or the corresponding mixture to one volume of lime, with an addition of powdered brick to the extent of 3-5ths, or 5-13ths, or even ¼ of the trass present. The following five examples are adduced, showing the various proportions of slaked lime, powdered brick, and trass. At the New Coln Mine, 2 of lime, 1 of brick, and 2 of trass. At the Caroline Gluck Mine, 8 of lime, 3 of brick, and 13 of trass. At the Helene Amelia, 2 of lime, 3 of brick, and 5 of trass. Ditto, 4 of lime, 3 of brick, and 5 of trass. At the general pits, 3 of lime, 2 of brick, and 3 of trass.

Pure trass mortar should be used in all places where the access of water and the pressure are great. In the place of powdered brick riddled ashes are sometimes used; the use, however, is objectionable, on account of the particles of coaly matter still left in the ashes. For example, the following proportion is sometimes used for dams:—3 parts of trass, 1 part of ashes, and 2 parts of lime. Sand has no hydraulic effect, and should, therefore, only be used for unimportant works. As examples, the following mixture is sometimes used at the Friedrika Colliery, near Bochum, 3 parts of lime, 2 parts of sand, and 3 parts of trass; at the Nightingale Colliery, near Witten, equal parts of lime, sand, and trass.

The preparation of trass mortar, by which an intimate mixture of the component parts is aimed at, is effected sometimes by hand with the shovel, when large quantities are to be prepared in mortar mills, or mixing or kneading mills. These generally consist of a conically shaped vessel, in which a spindle provided with arms revolves; the arms are placed spirally on the spindle, and carry knives having the edge directed outwards. The kneading machine at the Westphalia Colliery, near Dortmund, was 4 ft. 7 in. long, 31 in. in diameter at the upper and 20 in. in diameter at the lower end, and formed of 1 in pine planks, with a 2 in oak bottom, the whole bound together with iron hoops. The upper end was provided with a funnel shaped opening, through which the materials for mixing were to be poured, and at the lower end with a channel (which could be closed with a slider) to run off the mixture. The spindle was provided with eight arms, the knives projected 3 in. on both sides of the arm. The knives were placed closer together on the lower arms than on the upper arms. The apparatus was rotated by means of a water-wheel 7 ft. in diameter, making 10 to 14 revolutions per minute, giving 70 to 80 revolutions of the mill per minute. The materials were first roughly mixed together, and then filled in the following manner:—(8½ bushels) 4½ hectolitre of hydraulic lime with (8½ cubic feet) ½ cubic metre of water; then (4½ bushels) 2½ hectolitre of trass; again (2½ bushels) 1½ hectrolitre; and, lastly 3⅔ hectolitre of trass; a total of (14 bushels) 7⅔ hectolitre of trass; this filled the vessel to from two-thirds to three-quarters its height. The mixture was complete in 7 minutes, and furnished (18 bushels) 10 hectolitre of mortar; so that in a 12 hours shift about (270 bushels) 148 hectolitre of mortar was prepared, requiring five workmen on an average (54 bushels) 29⅔ hectolitres per man per shift with the kneading mill, the maximum per man per shift when mixed with hand being (17 bushels) 9½ hectolitre

Trass mortar must only be used when quite fresh, hence only the immediately required quantity should be prepared. It hardens first in five or six weeks time, at most in three or four months; so that, according to the necessary longer or shorter time before hardening, the proper mixture should be previously ascertained by experiment.

HYDRAULIC LIME A NATURAL CEMENT.— Every argillaceous lime becomes more or less hydraulic in its nature when burnt. With 10 per cent. of clay this property is but weakly developed, but the lime expands less on being slaked; with from 20 to 30 per cent. of clay it becomes excessively hard, and can then be properly slaked after being burnt, without becoming pulverised. With a higher percentage of clay the lime will not fall properly asunder, either in air or when slaked with water.

In some districts argillaceous lime which can be properly slaked is called water lime; in order to furnish good mortar, however, they require the addition of trass, or some similar substance, the amount of which varies with the original percentage of silica in the clay contained in the lime.

Natural cements are prepared from stones which contain a suitable quantity of clay, and require no further addition. They never fall into powder when exposed to the air, only in water, and cannot, therefore, be slaked. Such limes or cements are in general called Roman cement. They contain caustic lime, and are analogous, therefore, to trass mortar. The necessary conditions to be looked for in a suitable stone are a proper percentage of clay, that must be rich in silica, and an intimate mixture of the clay with the carbonate of lime. Such rocks are frequently met with in the jura and younger formations; for example, the septoria of the London clay in the isles of Wight, Sheppy, and Thanet, and on the coasts of Yorkshire, Kent, and Somersetshire. An analysis by Berthier gives the following composition:—Carbonate of lime, 65·7 per cent.; carbonate of magnesia, 0·5 per cent.; carbonate of iron, 6·0 per cent.; carbonate of manganese, 1·6 per cent.; silica, 18·0 per cent.; clay, 6·6 per cent.; water, 1·2 per cent.

According to another analysis of a stone from Kent, used for making cement, the cement had the following composition:—

	Stone.	Cement.	Hardened cement.
Insoluble in hydrochloric acid:—			
Quartz	6·0	6·0	8·4
Silica	10·5	0·3	3·8
Oxide of iron	1·2	1·3	2·5
Clay	2·5		
Soluble in hydrochloric acid:—			
Silica	0·7	19·4	8·1
Oxide of iron	11·6	9·2	6·6
Clay	4·3	7·3	5·9
Carbonate of lime	52·4	48·2*	42·8
Carbonate of magnesia	7·0	2·7†	1·9
Potash	0·8	0·8	1·0
Soda	0·2	0·2	0·3
Water	2·8	1·0	6·9
Carbonic acid	—	3·4	11·8

* Lime. † Magnesia.

As quartz is understood, everything insoluble also in sulphuric acid. According to many experiments these hydraulic limes take up on hardening from 12 to 15 per cent. of carbonic acid, and 8 per cent. of water, which seems partially confirmed by this analysis.

The rock from which the lime is to be prepared is first burnt in furnaces or kilns. During burning care must be taken not to allow the temperature to rise so high as to cause the stone to be partially melted, and a silicate to be formed. After burning the stone is crushed, during which care must be taken to protect the lime from moisture. When it is about to be used it is thoroughly mixed with water; sometimes a small quantity of sand is added—the sand acts only mechanically. For use when walling the shaft of the Präsident Company's Colliery, near Bochum, a mixture of two volumes of cement and one of sand was used; for dams at the same place two to three volumes of sand to three volumes of cement. Natural cements harden very rapidly—in from 15 to 20 minutes. In this rapidity lies at once their advantage and disadvantage, so that they will be used almost every where where a rapid hardening is required, but not where a slow hardening is desirable. Cement which has once become hard cannot be used over again. According to Fuchs a basic silicate of lime is formed during the hardening, and according to others when clay is present a basic silicate of alumina also, so that the product of hardening is a basic silicate of lime and alumina.

DIAMOND MINING IN SOUTH AFRICA.

The following is the conclusion of the interesting paper read by Mr. FREDERICK W. NORTH at the South Staffordshire and East Worcestershire Institute of Mining Engineers descriptive of the Kimberley Diamond Mine, South Africa:—

Whilst the diamondiferous earth or matrix was in a semi-liquid state there must have been ebullition, which appears to have distributed the diamonds irregularly throughout the mass. It has been noticed that they are most abundant at the sides of the crater, or beneath boulders or masses of "floating reef," as though they had had an affinity for such places, and had been governed by a law something akin to the one that causes the air bubbles on the surface of any liquid, sooner or later to find their way to the side; and it is noticed, too, that they increase in number as the mine becomes deeper. Another peculiarity of this distribution is that different parts of this mine have produced, and continue to produce, diamonds of a special colour or shape. For instance, all the west end is noted for the fine glassy transparent octahedron stones (specimen), whilst at the east end several claims have been always noted for large yellow stones. And it is also an established fact that each of the four mines already named, although within so small an area, produce stones so peculiar to each mine that an experienced broker or buyer will recognise at once the produce of each mine, and tell the digger from which he has brought them. These circumstances are very peculiar, and more easily noticed than accounted for, and will afford material for conjecture and for the speculative theories for some time to come. The writer does not attempt to explain the cause of these clearly apparent facts, nor to speculate upon the formation of the diamonds which have been so concentrated upon this favoured spot, but he does venture to affirm his conviction that they came from below, and in consequence he assumes that there is every probability that greater depths will be attained than the most sanguine have conceived, and that a greater proportion of large ones will occur than in any ground yet excavated. Actual work and past experience would seem to support this view, for there is no doubt that the ground is much richer now than it was at the surface, and although the depth of the whole mine averages 200 feet the value per load of the diamondiferous earth is greater there than ever it has been. The Mining Board valuations, annually obtained for purposes of taxation, show the steady advance in the rateable value of the whole mine.

MINING BOARD VALUATIONS.

January, 1875	£560,000
March, 1876	980,000
January, 1877	980,000
February, 1878	1,313,487

Now, these figures not only represent the rateable value of the mine but the approximate selling price in the market, and according to the last valuation some of the claims, 31 feet square=961 square feet, are valued at 6000*l.* each, or about 56*l.* 6*s.* 5*d.* per square yard —a most extraordinary value for land which at the early part of 1870 could have been bought for about ½d. per yard, and perhaps for much less. Great, however, as this value is the writer thinks there are very substantial reasons for expecting that at no distant date its total value will be 2 000,000*l.* sterling. These remarks apply to the whole area; let the increased value of a few separate claims be noticed.

NORTH SIDE.—Claim No. 325	1875	value £2000
ditto	1876	„ 3500
ditto	1878	„ 5000
EAST SIDE.—Claim No. 50	1875	„ 1500
ditto	1876	„ 4000
ditto	1878	„ 4000
WEST SIDE.—Claim No. 618	1875	„ 200
ditto	1876	„ 1000
ditto	1878	„ 2000
SOUTH SIDE.—Claim No. 342	1875	„ 1500
ditto	1876	„ 4000
ditto	1878	„ 5500

The claim No. 342 is situate with many others in that portion of the mine which has earned for itself the name of "Golden Belt," from the fact that the ground thereabouts always yields a much larger quantity of diamonds than elsewhere, but the other three examples are taken from various parts of the mine, and show the extraordinary increase in value in four years.

Having in view the number of claim-holders or distinct proprietors (at one time about 1600, now reduced to about 180), and the consequent conflicting interests, as well as the prevalant fear that the deposit could not go deep, that it was only a "pocket" of diamondiferous earth, and that the bottom would some time, and perhaps soon, be found, it is impossible for us to find much fault with the mode of mining, or rather excavating, which these adventurers adopted, as it were by intuition, in such a remote part of the country, and it is doubtful whether any member of this Institute would have suggested any better method for working his individual share if he had been a claim holder. Necessity with them was the mother of invention, and led to the perfection of their admirable mode of haulage by the aerial tramway, without which it would now have been almost impossible for so many different proprietors to work on so small an area without prejudicing each others interests, and hindering each others workmen.

It has already been seen that the present general appearance of the mine is that of a deep open working, averaging about 200 ft. deep, and that the actual claims have an area of nine acres. In addition to this, the slope of the "reef," which is—or rather ought always to be—at an angle at which it would remain, so that there may not be ruinous falls of debris to bury beneath an avalanche of rotten shale thousands of pounds worth of valuable property. The area of this slope at the present time round the sides of the mine is probably about seven acres, so that the area of the whole excavation at the surface level would be about 16 acres. On the northern and southern edges of this great opening most of the hauling engines are fixed, some worked by hand or by horse-whims, some by stationary and others by portable winding engines, and all are busy, except those engines belonging to claims buried under fallen "reef." Nowhere is the aerial tramway to be seen to such perfection as here, for no other place presents such a variety of buckets, being hurried to and fro through space upon double or single wires, at every speed from the slowest one can imagine to the modern plants, winding about 45 buckets, containing 16 cubic feet, per hour. Some of these latter buckets, running upon double conducting wires, with four wheels, and made to empty mechanically into a box at the top of the tramways, are a great improvement upon the old style, and are most creditable to the energy of the proprietors and the skill of their engineers.

It has been estimated by Mr. Francis Oats, F.G.S., that nearly 4 000,000 tons of diamondiferous soil and about 500,000 tons of dangerous and unproductive "reef" had been removed from the mine in the five years ending 1877, at a cost of 5,000,000*l.* sterling. That the value of the diamonds produced by this quantity of earth was 10,000,000*l.*, and, therefore, the net profit for that period was 5,000,000*l.* sterling from this mine alone. A complete record for the year 1875 from the various banks represented that diamonds were exported and insured to the value of 2,409,975*l.* during that year, but this amount would include the yield of other mines, represent, perhaps, 20 per cent. of the gross sum, the remainder being the produce of Kimberley Mine.

Reference has already been made to the reef or sides of the mine, which in reality is nothing but tender stratified shale (specimen), forming the walls of the original crater. These shales over the surrounding country are nearly horizontal, but all around the margin of the mine are often found to have a tendency to rise as though a force from below had upturned them. These indications may be accepted in support of the volcanic theory, because any power from below would naturally have a tendency to elevate the strata all over the space where that power was exerted, and the highest elevation previous to the positive break in the crust of the earth would be at the centre of the weakest point. Here ultimately the pressure would be relieved, the crater formed, and the original horizontal strata be slightly upturned in the ground that finally remained to form the sides of it; and on every side, a short distance away from the crater, the ground which had not been subjected to this pressure from beneath would remain in its original horizontal position. Whilst this volcanic agency was raising the strata before the final rupture into the shape of an inverted cup or saucer, it was impossible for the shales to stretch sufficiently for the purpose, and consequently fissures were formed pointing in every direction, and although the greatest dislocations would be in the centre, and were at once swept away, the ends of these fissures—or as we in Staffordshire say, faults—passed some distance from the centre into the remaining solid ground. This ground is now the reef of the miner, and has been so dislocated that any natural toughness it ever had is nearly destroyed, and the consequent danger of slips and falls of earth down upon the diggers beneath is greatly increased. Now, this rotten reef has long since been a source of great trouble to the miners and mining board, because clearly it was the duty of the latter to have it always removed, so that every claim could always be worked. The mining board consists of nine holders of not less than one claim, and are elected from the general body of claim-holders, and should truly represent the interest of the claim-holders. They have power to and do raise taxes for excavating reef, drainage, and for the general purposes of the mine, which is understood to mean everything having regard to the safe and continuous working of it to the benefit of all parties interested. They direct the expenditure of all money applied to such purposes, and the engineer for the time being has always had power to design and carry out works that the board has sanctioned. The Public Treasury receives all taxes, and honours cheques from the board in payment for such works. A rate at ½d. in 1*l.* per month upon the present assessment would produce an annual income of 32,837*l.* 3*s.* 8*d.* All rates and taxes are payable monthly, and so, too, is the interest upon money advanced upon hypothecated claims. The Government, at the request of one-half the claim-holders, may absolve any existing mining board, and order elections for another in its stead. Large sums of money have been rated by these mining boards, doubtless with the best possible intention. They originated because of the need of some governing body that could levy taxation and supply itself in this way with funds, so that the needful deadwork, such as pumping, sloping off reef, &c., could be done promptly for the general good out of the general funds. Now, it is obvious that if all are equally rated in order to be all freed from the dangers named above, then every claim ought to be productive, and no hindrances should occur to any claim-holder that would have a tendency to stop his work, and place him at a disadvantage.

Referring to the work of the claim-holders, it has already been remarked that "it is doubtful whether any member of this Institute would have suggested any better method for working his individual claim than has been adopted by the diggers." It is feared that this remark cannot be repeated when the work of the various mining boards and engineers is reviewed. All the members of this Institute must agree that nothing could possibly be more simple than to stope back the reef or unprofitable ground, so that every claim should always be free and uncovered. From an engineering point of view this must be regarded as a very simple problem, but neither the board nor their engineer for the time being have ever solved it, or if they have, they have never carried out their plans. Notwithstanding the absolute power possessed by the board to levy taxation and direct the needful work, it has generally had the misfortune to have a large portion of the mine either under water or buried under fallen reef. The claims in the centre being usually the deepest, are liable to the former evil, those at the sides to the latter.

In July, 1874, the mine had been flooded for six months. The first work of the board was to drain it, but it was not until much waste of time and several wretched attempts at pumping that an offer was accepted to drain the mine in 68 days for the sum of 6750*l.*, and the work was done within the specified time. At the beginning of the present year at least one-fourth of the whole mine was covered by thousands of tons of fallen reef. Some of the claims adjoining it had not been worked for two years from that cause, and during the whole of that time the owners had been waiting for some decided action of the board to help them. They had, in fact, been helplessly waiting, whilst the claim-holders in the more central claims had been continuously working because they were beyond the influence of the fallen reef. The loss of profit and the accumulated interest of the mortgage, if any, upon these buried claims, together with rates and taxes, have often brought disasters upon industrious and worthy men, who have at last had to sell to capitalists who were better able to wait the pleasure of the board than they. It would appear, therefore, that the action of the Mining Board of Kimberley, which should have taken equal care of all claims, has unintentionally been such that many small holders have been compelled to sell because they have not had fair opportunities to work, consequently for long periods very valuable land assessed by themselves to be worth, perhaps, 250,000*l.* or 300,000*l.*, has been

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath Dr. Von Groddeck, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

† Lottner's "Manual of Mining," p. 493.

buried and laid void, the interest upon such capital lost, and the produce of diamonds and the advancement of this industry greatly impeded. All this trouble and loss would have been avoided by continually keeping back the reef so that every claim should always be workable, and the board presiding over the welfare of a mine of such enormous value and resources should have always used the powers conferred upon it to secure the advantages which all claim-holders paying mine rates had a right to expect from it. It must not be supposed that the board has done nothing; on the contrary, it has done much, but invariably the work accomplished has either been too soon or too late to be of any or much service in preventing delay and loss.

It has been said that keeping back the reef in the past has been very simple. It should have been done in terraces of 50 ft. in height for economical filling. The terraces should have been broad enough to allow sufficient room for the laying of tramways with their points and crossings, and also that there should be present such level surfaces that any possible slip of earth should be caught upon them, instead of endangering life and limb by falling down into the bottom of the mine. A width of 30 ft. would be quite safe, and give to the slope from the bottom to the surface an angle of 60° from the horizontal. Had this plan been conceived and carried out from the first much valuable time would have been saved; and the writer would prefer that such terraces should not be level, but upon a sufficient incline to allow of them forming a spiral tramway down on to the lowest part, even if that should be 500 ft. vertical from the surface. All the hauling and shunting upon this spiral tramway should be done by locomotives, which would cost in England, f.o.b., about 1000*l.* each. The cliff of each terrace being 50 feet in height, it follows that these locomotives would have to climb, or rather rise, 50 feet vertical every circuit of the mine, and the steepest gradient to accomplish this would not be more than 1 in 60. It is not too late even now to adopt this suggestion. By this system earth could be detached from any part of the reef, loaded and removed to the spoil heaps at any time without interfering with any of the claim-holders. No system could equal this for economy in first outlay, or in working expenses, so long as it is found desirable to maintain the mine as an openwork, and, therefore, have to slope back the reef. The time must come, however, when it must cease to be worked as an openwork. It is difficult to fix the depth at which it will be found dangerous to work in such an excavation. At 300 ft. in depth the arrangements on the terrace must be so perfect that no lump of rock shall ever fall among the miners, and the writer believes that 400 feet will be the extreme depth to which this valuable mine will be worked in that way with safety. It may with exercising great care upon the terraces (always keeping them 30 ft. wide in order to catch pieces of decomposed shale) be taken down to 500 feet, but that must be the limit, and it must be hoped that no frightful accidents will occur in attaining that depth. Supposing 400 feet to be fixed as the limit the open working will be finished (at the present rate of progress) in six years. With this in view, and a desire to keep up the production without any sudden falling off in quantity, perhaps it would be well to bore the mine in several places to a depth of 750 feet from the surface to prove the continuance or otherwise of the diamondiferous earth. If the result of this boring was favourable, then the real mining could at once be commenced by sinking a pair or one large shaft as near the mine as possible, and by levels at various depths explore the ground beneath the bottom of the openworking, and be actually producing diamonds from below before the assumed limit of 400 ft. is attained.

Such an enterprise could only be carried out by one corporation. There are, however, so many distinct holders and different interests that nothing but some unforeseen calamity rendering it impossible to go down deeper will bring about such a combination. Or, perhaps, the more wealthy claim-holders will arrive at the same end by gradually buying up the weaker ones, who are either compelled or glad to sell. Much could be said in favour of such a mode of operation instead of openworking at a depth of 4000 ft. The first great advantage would be the immediate suspension of all works in keeping back the slope of the reef. If it required sloping at an angle of 60° from the horizontal, which is more than likely, the expenditure at a depth of 400 ft. would be enormous upon that item alone. The usual progress in the mine is at the rate of 36 feet in vertical depth per annum, which is equal to 1 yard per month. Now, in order to keep the slope of the reef back at an angle of 60° it would be needful to excavate 95,000 cubic yards of unproductive earth off the terraces for every extra yard of vertical depth. This is equal to 4000 cubic yards per day, and at the low estimate of 2*s.* per yard would cost 11,700*l.* per month. It is doubtful, too, whether there would not be some practical difficulties in hauling that quantity per day by the locomotives up the spiral tramway from a depth of 400 ft., in which case the mine could not proceed at the usual rate of 1 vertical yard per month. Accumulations of water during the rainy seasons will also be a more serious difficulty at 400 ft. in depth, with the corresponding width at surface, to collect it. Then, with regard to working it as a mine from the suggested pit shafts. In working the diamondiferous earth underground all unproductive rock must be left as far as possible in the pillars and roof of the workings, and it will certainly not be needful, as at present, to wind out everything, whether it be "floating reef," "boulder stones," or good "blue ground." Scarcely any ground need be brought out of mine that will not be remunerative, because much debris would be required in the pit to "pack" and fill up the openings from which "blue ground" had been taken. The winding charges would be greatly reduced, because two winding-engines could be erected, similar to those at a first-class colliery, which with four ropes would be able to wind 1600 cubic yards per day from the various levels. With this one plant, therefore, about the same quantity of "blue ground" could be raised to the surface as is now accomplished by the united output of all the aerial tramways that are winding out of the claims. Much economy would result from this centralisation of the hauling, for only two engineers and the needful stokers would be required, instead of the large number employed to work and repair the many small engines now fixed round the edge of the mine. Many other ideas could be noticed here upon the past and future working of this valuable mine, but it is hoped that enough has been said to create a little interest in a subject which is not sufficiently known, and to promote an interesting discussion upon the whole subject.

After the reading of the paper some valuable diamonds and geological specimens were minutely examined, after which a hearty vote of thanks was accorded to Mr. North for his paper, which was suitably acknowledged.

There was also exhibited and explained a Corfield's patent foul air extractor, by Mr. G. M. Compton, of London. This concluded the whole of the business.

IMPROVED ROTARY STAMPS.—Among the machinery connected with the treatment of mineral to be seen at the Paris Exhibition the rotary stone-breakers—Broyeur Concasseur—shown by Messrs. DURAND and CHAPITEL, of Rue Lafitte, Paris, is well worthy of attention. It is found in practice that the breaker is equally applicable to hard and soft substances, and that a large amount of work is got through. The tool employed for breaking consists of hammers or flails, entirely free and independent of the rotating shaft, and they strike with a free fall. Thus the imitation of manual labour is the starting point of the invention, and just as the stone-breaker on the public roads is armed with a hammer having a long, thin, flexible handle, so the new breaker has a flexible hammer, which gives a blow identical with that given by hand, whilst there is very little wear and tear. The movable hammers fall with great rapidity upon the material to be crushed, and screens are so arranged that none of it can escape until reduced to the requisite size, whilst very little dust is produced. It is stated that Messrs. Durand and Chapitel's machine will break, according to the character of the materials operated upon, from 8 tons to 25 tons in the day of 10 hours, with only 2 or 3 horse-power. Those of the size requiring 6-horse power will get through from 80 to 130 tons in the same time; and with 20-horse power as much as 550 tons per day can be treated. It appears that stones 2 ft. × 8 in. × 6 in. can be reduced to builders' sand at one operation by the 6-horse power machine, and the 2-horse power machine is equally effective for stone 8 in. × 2 in. × 2 in., the yield per hour in each case being 1 cubic metre (more than a cubic yard) of prepared material. For phosphate of lime, ores, quartz, granite, and so on, the Durand and Chapitel stamps have proved themselves to be very economic, so that the inventors anticipate a large business among miners. They also exhibit a similar machine for breaking coke, but with the difference that the hammers are replaced by choppers, so that the coke is cleanly cut instead of being crushed, as is generally the case with other systems. The yield is enormous, for it has been found that a hand machine with two men can break 400 hectolitres in 10 hours, and a 2-horse power machine 3000 hectolitres in the same time.

THE MINERAL RESOURCES OF THE TRANSVAAL.

Although nothing approaching a systematic survey of the Transvaal has yet been made, enough has been done to ascertain that there are abundant mineral deposits which will well repay working; some of them, indeed, have already been worked, and the produce of them sent into the market, and the attractive little collection at the Paris Exhibition should suffice to attract the attention of capitalists to the province, and lead them to enquire something about its capabilities. The Transvaal appears to be one of those territories which the ignorance and apathy of the former Governments of the Cape Colony have caused to be so scandalously neglected that immense injury has been inflicted both upon the province and upon the empire, but under a strong and energetic Government all this may speedily be rectified, and as an abundant food supply may be relied upon it may be hoped that the development of the mineral resources will be easy and satisfactory. With regard to the surface capabilities of the colony, it is remarked that the soil in the Transvaal consists principally of black and red loam; in some places black clay and sandy, but of the latter there is but a small proportion. On account of the country being so thinly populated and choice land having been so cheap, no Transvaal farmer would think of settling upon any land for agricultural purposes where he has not a large stream of water—it may be for a river or a fountain—and therefore we frequently find as many as 10 to 15 families, comprising a population of over 100 souls, on one farm, and all living upon the agricultural produce. With the stock breeder it is different. Pumps or any such machines to bring up water from the ground are but partially known in the Transvaal, and anyone introducing even the simplest water-raising machinery (water being obtainable within 20 ft. of the surface in the low lands) would be able to change the now so-called dry farms to water-farms, and thereby make them just as valuable as the farms on which agriculture is now carried on. As an instance of what can be done we will mention that when the first rush of about one hundred miners took place to the present Diamond Fields, they had to carry water with them from the Vaal river for drinking and washing; some brought only soda water for both purposes. But now there was an opening for enterprise, and as these fields, first called the New Rush, were found so rich that they were besieged by thousands of people, the procuration of water became a necessary industry, and several wells were dug; in fact, many people made a fortune by the sale of water. There was soon a sufficient supply for a population numbering 50,000, and now Kimberley, the chief town of the Diamond Fields, has a Botanical garden with its own irrigation.

Agriculture in the Transvaal is as yet in its infancy, and there is consequently great scope for improvement. The same remark will apply to the breeding of live stock. But in a country where Providence has been so bounteous, and while the population do not understand how to make use of its advantages, it is just the place for an intelligent and enterprising man to make his fortune; and if there were a few hundred good English farmers settled in the country they would do a great deal of good for themselves, and at the same time by their example benefit the country at large. The table lands of the Transvaal are suitable for sheep and cattle, and the high mountainous lands are adapted for the depasturing of Angora goats. Judging from the rapid increase of the ordinary goat we should say that the breeding of Angoras, or the importation and farming of Llamas, would be a very profitable occupation. Cattle breeding and dairy farming would undoubtedly be a remunerative enterprise, and as the present breeds of cattle and all other animals require great improvement there is an opening for the energetic man to make money by importing breeds both for his own farming purposes and for sale to his neighbours; a well-bred animal will always fetch a high price.

The Transvaal, says a competent writer on the subject, whose long residence in the locality gives authority to his statements, has since its first occupation by white men been the granary for the adjoining States and so far into Cape Colony as the ox wagon could reach; its cereals and delicious fruits always found a ready market, but until the discovery of the diamond fields, in 1870, there was no other outlet for Transvaal produce than Natal and the Free State, the latter being the best and most profitable customer, and in consequence only a limited amount of cereals was produced; with the opening of the diamond fields a new era commenced for the territory. It has always been well known that the Transvaal is exceedingly rich in minerals; and even so long ago as 1852 a large landowner at Potchefstroom—Chevalier Forssman—and an exploring party but inadequately supplied with the necessary appliances for exploration succeeded in finding a rich copper mine, and with the assistance of Kaffir implements and bellows extracted pure copper from the ore. Since then other minerals have been discovered every year, and the Transvaal is now without doubt one of the richest mineral countries in the world. It is now shown on the most reliable map of the colony—Jeppe's—that rich mineral deposits are found in all parts of the country, and these only discovered by occasional travelling savants and land surveyors when surveying certain farms. How long this untold wealth of minerals will be allowed to remain undisturbed is a problem left to be solved by the enterprising capitalists of England.

The enormous mineral resources of the province may be judged of from the facility with which valuable mines have been discovered. For example, Mr. Bray, of the Marico Lead Mine, and Mr. Percy Whitehead, of the Cobalt Mine, in the Middleburg district, both discovered the mines, which they are now working to fair commercial advantage, when they were quite strangers to the Transvaal; and mention might also be made of several discoveries of gold by new settlers, as at Pilgrim's Rest, in Lydenburg, Marabastad gold fields, near Macapanspoort, between Zoutpansberg and Waterberg, Bluebank gold fields, between Potchefstroom, Pretoria, and Rustenberg. These are only first discoveries, earnests of future wealth which promise to lead us on as the population increases and fresh deposits of gold are discovered to make the Transvaal a gold field of vast extent. In the meantime, there is a continual export of gold from the Transvaal, which is proved by the quantity shipped by the Cape Commercial Bank, whose purchases average from 600*l.* to 700*l.* per week. It is well known that a gold digger does not part with more gold than he requires for daily expenses, so the above does not represent the total yield of the Lydenburg gold fields, besides which, the Standard Bank of British South Africa has also established a branch at Lydenburg. Gold has lately been discovered within a few miles of Pratoria, which seems to be of so much importance that the Transvaal Government gave 125*l.* towards its further development, and the finding of alluvial gold (gold quartz has long been known to exist) at the Bluebank gold fields has been fully confirmed. And it should be remembered that these new gold fields are situated in the midst of the best agricultural district, and within easy distance of the flourishing towns of Potchefstroom, Pretoria, and Rustenburg.

Cobalt is already being profitably exported from the mines already mentioned, and there are many lead mines which if they contain a high a percentage of silver as is supposed will form a considerable opening for industry. Copper ore exists in abundance, but will not pay to export unless first smelted, the cost of carriage being at present very great. There is, however, plenty of wood in the vicinity of the ore where no coal is found, and when the means of transport are improved by the construction of roads and canals, and the railways from Cape Colony and Delagoa Bay (the former of these having been already commenced) are carried out, this mineral will be found an important commodity of exportation.

But the minerals which promise to be of the greatest importance to the Transvaal are coal and iron, and these have hitherto been scarcely referred to. These two minerals are found in such great abundance that they are seldom taken notice of. Coal is used in Potchefstroom as fuel during the winter, when the paterfamilias and his family are assembled around the homely hearth, and a stranger coming into Potchefstroom, or any other town within reach of coal deposits might imagine himself in an English town from the smell of coal which pervades the streets. The coal deposits are principally in the direction of Wakkerstroom and New Scotland, but never having been worked in any place to a greater depth than 10 ft., we cannot dignify the excavations with the term mines, or class the quality of the coal obtained. However, if the surface coal is tolerably fit for use, there is every reason to expect that that taken from a greater depth will be of a superior quality. Iron ore has always been neglected at the exhibitions in the Transvaal as, on account of its abundance, it has not been thought worthy of a place among the rarer exhibits, and it may now be seen on view for the first time at the Paris Exhibition amongst the collection from the Transvaal, and there is every reason to conclude that the establishment of an iron foundry and manufactory in the province would prove highly remunerative, for the raw material is found in abundance, and the carriage for all heavy goods from the nearest seaport is from 15*l.* to 20*l.* per ton. These heavy transport expenses are in themselves a protection for the enterprising manufacturer, and give him a second considerable profit. Ploughs cannot be bought for less than 7*l.* to 8*l.*; spades, 9*s.* to 12*s.*; iron belly pots and all other common iron manufacture is 1*s.* to 1*s.* 3*d.* per lb.; iron wagon tyres, 6*d.* to 9*d.* per lb; not to mention the heavy cost of agricultural and other machinery, for which there is a good market, particularly if such were manufactured in the country and could be seen at work by those who do not as yet understand them.

It is scarcely necessary to observe that by purchasing in newly settled districts, when land is still at a mere nominal value, that the more prosperous land companies have made their large profits, for although it must be admitted that there is then greater difficulty in determining the full value of the ground purchased, the results obtained by development from mineral and other discoveries made so greatly enhance the value that not only is the outlay incurred amply repaid, but the difference in the market value yields a satisfactory interestupon the capital invested. The Transvaal has the further advantage of being partially explored, so that with care and judgment there is no reason why good commercial results should not be obtained.

A VISIT TO THE MINES OF BISCAY.

On a fine autumn morning nothing can be imagined more picturesque than the journey from Bilbao to the mouth of the Nervion river, on your way to the mines of Biscay. Olaveaga, a sort of distant suburb of Bilbao, is soon reached, and vessels now appear more numerous. English steamers, Spanish coasting vessels, large three-masted sailing vessels which trade with Cuba, ugly little barques are lying side by side, and mostly near the left bank, where the piers for lading minerals are situated. Not far from Luchana the bed of the Nervion becomes broader, the mountains retire towards the interior, and the ground is only slightly undulated on the right bank until you reach the Sands of Las Arenas. Before you get there you pass through the most busy part of the river. There at El Desierto are the great factories of the Ibarras, with many lofty chimneys and furnaces. Numbers of piers are constructed at the waterside to bring the mineral right over the ship's hold, and the long trains of iron ore are unceasingly arriving from the Orcanera and Triano Mines in yon dark sierra in the background. Near these factories and piers are lying more than 50 steamers, loading or awaiting for their cargoes. There you see the flags of Great Britain and France close to the steamers of Ibarra and close to those of Herr Krupp. British vessels are, however, most numerous.

Pushing further on along the Nervion you reach a long breakwater, which is part of works destined to make the bed of the river narrower. The channel is not very deep, even near Portugalete, and the water extends over so large a bed at high water as to form a sort of lake. Portugalete is built at the mouth of the Nervion, at the foot of a chain of hills, of which the highest are those of Serantes, behind Santurce. The town and houses of Portugalete no longer bear marks of their bombardment by the Carlists. The Esplanade is lined with fine hotels and villas, facing the bar at the mouth of the Nervion. The ocean dashes with much force, not only on the bar, but on the pretty sands of the Arenas beach. The abra or bay of Portugalete is very picturesque between the Serantes Coast of Jurra with cliffs rising from the water's edge and the headland of Algorta crowned by a pretty town on the opposite side. The Nervion comes flowing into the bay past the Esplanade of Portugalete, and at high water the surf runs high on the bar. Then it is a pleasant sight to watch the benches full of people, gazing at the steamers moving slowly out, and in their wake sailing vessels towed by powerful tugs, or fishing smacks skimming along with their white sails spread. No better view of this spot can be had than from the fine villa of the manager of the Galdames Mining Company, whose district was the object of my visit. The house stands on a slope above the splendid pier several hundred feet long, where the steamers come to load the ore: 14 large and small craft, one of which registered 1600 tons, were lying by the pier. The trains up above, composed often of as many as 20 wagons, come and discharge the ore into wooden shafts, which drop it into the ship's hold. I was assured that on one occasion 171 tons were put on board in 30 minutes. In one day of July 636 cars were brought to the waterside and emptied 3365 tons into the holds of the steamers. Often have as many as two vessels been cleared off in a day by the help of the machinery which so ingeniously brings the ore from the mine up in the mountains to the car, and then it is only a question of speed to carry it to the river and to the ship's sides. Near the pier of the Galdames Company are their large works, in which the rolling stock, engines, and cars are repaired. The storehouses, engine depôt, signal house, and magazines are fitted up and managed with much care and such perfect order and neatness as Spanish railways seldom pride in. The company has nearly 1150 hands employed on the railway, the pier, and the mines. The engineers and most of the foremen are English or French, but the men are recruited among Basques and Castilians alike. This company was established some six years ago, and the ground had been examined and studied by its engineers as far back as 1871. The work was begun before the war, but it had to be suspended during nearly three years, as the district was the hard-contested scene of the operations for the relief of Bilbao, and besides, the River Nervion was entirely shut up for purposes of trade from August, 1873, to March, 1876. Directly after the relief of Bilbao the work was resumed, though under great difficulties, and was continually interrupted by the Carlists for nearly two years. The railway was completed soon after the war over the whole line of the company, 14 miles in extent, from the river to the mines farthest from its banks. The exportation of the mineral has since then become far easier than in the days of ox-carts and mules slowly toiling along the mountain tracks and roads of Somorrostro. The Galdames Company exported in 1877 about 360,000 tons of ore from the river, and out of this total 170,000 had been extracted from their own mines, the rest being contracted for from the neighbouring concessions. It is estimated that the amount extracted in 1878 may amount to 200,000 tons, and the probable exports of the Company would then range over 500 000 tons of ore. I selected the Galdames works and mines for the expedition on account of their being more extensive, and therefore giving a more complete idea of the mining in Biscay than the other equally important works of Orcanera, Ibarra, the Franco-Belgian, whose lines are almost in sight.

After a hearty meal under the hospitable roof of Mr. F. Baron, the chief engineer and manager of these works, we started, a small party of five in a car, comfortably arranged with seats and cushions, and drawn by a powerful engine. Our host very kindly acted as cicerone for the day, and at 10 o'clock we entered the tunnel, 650 metres long, which runs through the hill behind Portugalete. On the other side

we found a station, where several engines, and long trains laden with minerals were waiting for orders to go to the pier. The line rises very rapidly, and by many curves, through a hilly and fertile country, until it reaches its average elevation at the foot of the Triano range. The district you traverse before you get there is not very thickly peopled. It is, however, well cultivated, and each turn in the line brings into view slope after slope clad with fruit trees, crops of maize, and vineyards. The ugly *caserias*, or peasants' home-steads, are not very numerous, and most of the able-bodied men are busy in the brown hills above. It may seem strange to use such an epithet, but indeed the ground, hill-sides, the railway cars, objects animate and inanimate, human beings—all take that dull brown or reddish hue which is nothing but the dust of the mine raised and taken all over the place by the wind.

We are brought to a standstill at the first station, and here we can realise the effect of the mineral on the tints of the scenery. The very ground is dull ochre colour, and the cars are the same. The mountain side is alive with human industry. Here you see a shaft incline with rails and little cars that bring their precious load down to the line. Up above, down that shaft rattles the ore which fills the railway wagon, often dashing its sides to pieces. High above your head on those wires comes a circular basket full of ore, and the contents are emptied on the embankment, whilst the other baskets move up the wire rope. Further on the hillside is a slope deeply furrowed and indented by the ore, and always the ore which comes bounding and springing down from the platform overhead. The miners are not less characteristic in appearance. Their faces are brown; their garments have lost all their hue but that of the ore; their strong brawny limbs have taken the same tint, making old and young look alike as they move to and fro earning their 12 reals a day—about 3s. 2d. Look up far higher than I have attempted to describe and there you see the other mines of Triano, of Orcanera, quite up to the summit of the Cordillera. The whole place is alive with the activity of the natives, impelled as it were by foreign capital, and directed by the skill of English engineers. There are, indeed, a little army of 5000 men employed in extracting the mineral for the steamers in that silvery stream you see far away. No workmen, we are told by their employers, can be more patient or more industrious than these poor fellows.

The engine whistles, and we have to resume our journey onwards. The train advances through deep cuttings in the limestone, and the road is fringed with underwood of oak and beech. The rocks are numerous, and the ferns are lovely as those purple flowers in the heath all around. There reigns a silence which no bird disturbs except the hawks soaring high over the rocks of Sorantes, just as the splendid view of the Somorrostro valley bursts upon us. Upon yon hills four years ago I stood with Marshal Serrano's relieving columns, and that conical height is the Monte Janeo where 15 siege guns served to shell the Carlist lines. In point of fact we were passing rapidly over the old positions of Don Carlos. That ruined church standing on a height which is the key of the whole line is San Pedro de Abanto. How silent and how peaceful looks that valley with the Somorrostro sluggishly flowing towards Musquir and Porina. There between Monte Janeo and Montano appears a glimpse of the blue waves, dancing on the sands of Porina opposite the bay where the cruisers of Serrano used to shell the rocks of Serantes. The houses of Las Carreras, where 2700 wounded slept four years ago, are now the peaceful abodes of miners, and the church, the bridge of San Pedro de Abanto, the old castle of the feudal race of Solarars, the palace of the House of Villaris are almost deserted on the very spot which was the camp of Serrano and his troops.

The sun shines gloriously overhead, the wind is keener as we ascend, and it moans softly through the beautiful woods of the Encartaciones. The upper valley of the Somorrostro is more picturesque than the scenes of the late war. The mountains are closer and are covered with grass and vegetation to the summit of all but a few peaks. The valley is wooded and the little, clear, limpid stream flows over a rocky bed or tumbles through natural embankments like a cascade. Trout are lurking in these pools, and among the furze and heath partridges may be skulking. The line passes through curves cut in the limestone, and commanded by sierras until we come in view of Montellano, Cortes, Sopuerta, and the village of Galdames. There, in a small glen in the mountains, is our last halt, a little station close to the house of the engineers, where we found a kind welcome and an excellent luncheon.

We did not have to go far to find the mines, as they are cut straight into the flanks of the mountain. The large blocks of mineral ore mixed with stones and earth, are separated from the parent seam by the force of dynamite and powder. In the upper part of the seams you see miners boring the holes for the fuses, and below them the results of previous mining are to be seen in the large and small fragments upon which gangs of men are at work. They detach with pick axe and huge hammers the best blocks, which are put on large cars; the smaller pieces are placed on other cars, and the stones and sand are piled as a sort of battlement on the edge of the excavation. When the cars are filled they are rolled to the border of the shafts and inclines. Then you hear a rumbling noise, which is re-echoed by the mountain, whilst the ore dashes down to the depôts, and sometimes to the cars of the railway. Hundreds of men are thus toiling away in various places on both sides of a high cliff. Mr. Baron assured us that some of these shafts had been worked in the Middle Ages and at the time of the Roman Invasion. He also told us that most of the miners had served in the Carlist ranks, and during the first months after the war they used to work at the mines in their dark blue uniforms. The ore they get out of the Galdames district is of the kind called rubin or brown ore, which is the richest. The ore of Triano and nearer the Nervion Valley goes by the name of campanite or red hematite. They both contain from 50 to 54 per cent of iron. On the Galdames works the men are only made to labour in the week days whatever be the press of work, but I am sorry to say the other companies, though in British hands, keep their men on even on Sundays when they require to complete shipments It seems that as many as 25 trains are often run down the Galdames railway between sunrise and sunset. It was by the last but one in the evening that we left the mining district, and already the breeze was almost cold up in those high regions. The shadows of evening were extending over the Somorrostro Valley, and the last rays of the sun were lighting up the chain of Montano and Serantes as we came up along the base of Monte Triano. It was almost 7 o'clock when we descend the incline, towards Nocedal and the Portugalete Tunnel, with all the brakes on and creaking as we moved forward, the cold air beating against our faces and the evening star just appearing on the horizon. We took leave of our able and obliging cicerone on his pier, and got into the Esplanade of Portugalete in time to see the full tide. The water was very high and the long swell was coming with force on the bar, rearing into fine waves and dashing foam over the piers. We had to pass the river in a large flat-bottomed boat, which carried about 40 persons in the Arenas Causeway, not without hard pulling, as the waves are felt even inside the bar.

After visiting the Galdames Mines of the Somorrostro district I paid a visit to the Orcanera and Triano Mines, situated in the higher ridges above the Galdames Railway. We started from the Luchana Piers in the Nervion, and were taken up the sharp inclines of the Orcanera Mining Railway at a pace which was suggestive of a trip to the ravines down below us, until Engineer Scott ordered the stoker to moderate his pace. We ascended the slopes over the Galinda Valley, which lies between the Nervion and the mountains, and we saw in the little plain other lines belonging to the Deputation of Biscay and to the Franco-Belgian Company. The Orcanera line is remarkable for its sharp curves of 80 metres, and for the most picturesque and precipitous embankments over very wild scenery. The railway gets very close to the works, and, as in the case of the Galdames, the ore is brought down by shafts, by wire rope and aerial tramways, by inclines and by subterranean galleries from the interior excavations. The ore is all of the red hematite, and it gives its colouring to everything, to the soil, to the bushes, to the cars, and to man and beast alike. We soon perceived in each other's faces and on our clothes that the dust was giving us the same tint. The most remarkable features in the Orcanera Mine are the excavations, which sometimes plunge 80 ft. in the bed of ore, and affect the most singular shape. One of these open-air hollows had the appearance of a cavern, in which the men looked like beings of an infernal region, toiling at the sides of the rock, and rolling away cars that disappeared in sombre galleries. High over them, on ledges, others were picking out the ore, and nearer the surface we saw the traces of workings which, like many immense subterranean galleries, date from the time of the Romans. In these mountains there exist miles and miles of these ancient underground mines. Not far from the Orcanera the engineers showed us native workwhere the obstinate proprietors are still picking out the softest seams, and carting the ore down to the deputation in ox carts across bad roads. After visiting the red mines, which produce more than 1200 tons per diem, we scaled the heights behind and settled down to a capital luncheon on a ledge of rock at the mouth of an old mine. A more lovely glen, with its rocks and heath-covered sides, could not be imagined, and the view from these rocks is one of the most extensive I had seen in the North of Spain. We were able to see in our panorama the greater part of the Nervion valley, and the bay of Portugalete, the entire valley of Somorrostro at our feet, and, brightly lit up by the sun, Castro and all the beaches of the coast, with their belt of deep blue ocean and mountains dimmed by mists inland. It was a happy spot for our last look at Biscay.

PENSTRUTHAL MINE, AND ITS PROSPECTS.

We understand that the directors have lately had this mine inspected, and that they have reasons to expect that ultimately it will be a very valuable property. A good deal of substantial work has been done during the last five and a half months. New pitwork has been fixed from the 72 to the 88, cistern and trip-plat cut, the engine-shaft sunk over 10 fathoms nearly ready for a 98 fm. level, and 52 fathoms of drivages in levels and cross-cuts, besides rises on the lode not included in this measurement. The engine-shaft has continued vertically on the course of the lode of irregular size, varying from 4 to 7 ft.; it intercepts many veins dropping out of the surrounding granite through the north wall, the reception of which consolidates the lode, which consists mainly of friable quartz, with mundic, slightly stained with copper and specks of yellow ore and traces of tin.

The indications in the bottom are evidently of a much more cupriferous character, and it, moreover, drains the upper levels to their extreme ends, and both the lode and granite have become much easier to sink on. It is found, however, that the position of the shaft is on the poorest part of the lode, the cause of which has been ascertained to be the junction or near approach of the tin lode, supposed to impoverish the copper lode at this point, for within a few fathoms (from 10 to 20) on either side of the shaft the lode is productive of copper in the three succeeding upper levels. The dip of these deposits are apparently vertical, or parallel to the shaft, so that extension of levels from the shaft would require to be driven those distances to cut the copper ore. For this reason it is deemed most advisable, now that the engine shaft is down 26 fms. without a level, to begin driving at the 88 at once to cut these valuable shoots of copper ore east and west of it, which may probably be found much richer in this level, in consequence of its being below the elvan course, for the extension of this level may determine more than the further sinking of the shaft would do at present, although the lode there has improved latterly; for in this east and west extension at the 88 the lode recedes from the elvan course in a similar manner to what it does in sinking the shaft.

The 72 west is driven 29 fms., and within the last 6 or 8 fms. driving it has entered a deposit of copper ore equal to 2 tons of black, grey, and yellow ore per fathom. In the 58 above a similar course was cut, getting richer in the sole of the level, and remains to be stoped away to the 72 when communicated with, and would begin to add considerably to the returns of the mine. Eastward in the same levels and up to the 46 there are similar shoots of ore, which, on further investigation, may be found equally rich. There is considerable improvement in the tin lode going east at the 34 which may lead to the necessity of making a communication with Greene's shaft from this end of the mine, as that engine-shaft is nearly over it, and a connection with it would be of great advantage for the economic working of the eastern part of this mine in its extension towards the junction of the granite and killas. The cross-cut going south at the 46 to cut the great 40 ft. lode so conspicuous for its ancient excavations on the surface is now driven 56 fms., and has about 12 to 14 fms. further to drive to come perpendicular under those old workings. Symptoms of an approach to them are already visible by the stains of copper all over the end, and by a large branch of tin and copper ore lately intersected.

THE IRON AND STEEL INSTITUTE IN PARIS.

The Iron and Steel Institute met on Monday for the first time in Paris. Some 600 members were present. After a welcome by the French delegates and the disposal of preliminary business, Dr. Siemens, the president, read the inaugural address. A vote of thanks was proposed by Mr. I. Lowthian Bell, seconded by Mr. Samuelson, and carried unanimously. The announcement was then made that at the request of the Prince of Wales free tickets for the Exhibition would be given to the members during their stay in Paris. Two papers were to have been read, but the discussion on the first took up all the time of the meeting. This was a paper by the French Professor Jordan on the resources of the iron manufacture in France. This paper was very learned, complete, and technical, and though read in French seemed to be understood by a great number of the English members, many of whom spoke French fluently. The discussion which followed touched upon only a very small portion of the paper, and was confined entirely to coke ovens and the use of coke in smelting. The speakers were M. Fremy, of the French Institute, Professor Jordon, Messrs. Riley, Windsor, Richards, Gruner, Lancaster, and I. Lowthian Bell. The success of the sitting was due to the two latter, whose addresses were greeted with applause. Dr. Siemens admirably summed up the discussion, which resulted in no positive conclusion. What seemed clear was that the Beskine oven is best fitted for making coke of English coal, while the Belgian oven is best adapted for coking with French coal. Dr. Siemens expressed the hope that the subject would be more fully dealt with on another occasion.

The second sitting of the Institute was held on Tuesday. The proceedings were opened with a speech by M. Tresca, in which he said that combustibles for smelting purposes would never fail whils the sun existed. Three interesting papers were read. The first, by Prof. Akerman, of Stockholm, treated of the most recent advances in the manufacture of iron and steel, as shown by the exhibits in the Paris Exhibition. The second, and by far the most remarkable, by Mr. Adamson, dealt with the mechanical and other properties of iron and mild steel. The third, by a Frenchman, M. Marche, treated of some recent aspects of the steel manufacture. Mr. Adamson's paper threw the others into shade, and is one of the most excellent read before the Institute. As Dr. Siemens said, "It will in future form a standard work in the history of steel." To illustrate it Mr. Adamson had brought over a considerable quantity of steel plates, bars, and boiler flues on which he had tried experiments, and which were, moreover, illustrated by many diagrams. The effect on the Frenchmen was one of utter amazement. In the discussion that ensued M. Fremy, M. Gruner, Dr. Siemens, and Mr. Barnaby, Chief Constructor of the British Navy, took a prominent part. Mr. Barnaby said he did not believe steel suffered more than iron ones from oxidation, and that the British Government had been induced to use them in future. M. Fremy, on the contrary, said the Chief French Naval Constructor had told him that steel plates gave no satisfaction at all. They were subject to excessive oxidation, and sometimes cracked like bad glass. At this point, the time being late, the discussion was adjourned.

The final sitting of the Institute took place on Wednesday. Prof. Jordan, in the name of France, expressed regret for the loss of Mr. Whitwell. Mr. Edward Williams was then unanimously elected President of the Institute, in succession to Dr. Siemens. Mr. Williams made a remarkable speech, the gist of which was that he would be a practical president, in contradistinction to Dr. Siemens, who was chiefly theoretical.

The discussion on Mr. Adamson's paper was continued by Mr. Mitchell, who demonstrated the success of steel in shipbuilding and in boilers. Mr. Kitson wittily pointed out the steel proclivities of the meeting, and humorously rehabilitated iron. Mr. Richardson followed, and spoke warmly in support of the use of steel. On the whole, iron was discarded; and steel, in spite of its shortcomings, taken into favour.

The French Professor Gruner aptly pointed out that where steel boilers were not successful it was because the steel was too hard. Mr. Crampton and the majority were of opinion that the care taken of boilers was the secret of their lasting properties. This care consisted chiefly in not allowing the flame to impinge directly on the boiler, and letting the water cool somewhat before blowing off steam. Mr. Hallis, of Pennsylvania, gave some facts in favour of steel, after which Mr. I. Lowthian Bell took exception to a statement of Dr. Siemens that manganese was but a cloak to the defects of steel. After some further discussion, Mr. Adamson replied on questions and objections anent his paper. It was, however, unanimously decided that the subject was far from exhausted, and should be resumed at the next meeting of the Institute. A paper was then read on a new converter, the invention of M. Ponsard; but the reader was unable to answer the questions put to him about waste of metal, wear and tear, &c. The session concluded with votes of thanks to the French institutions which had invited the Institute, to the Prince of Wales, Mr. Cunliffe Owen, and various French manufacturers who exhibit at the Champ de Mars. The rest of the week will be spent by the Institute in visiting different iron works in France, of which we shall give full particulars in future numbers of the Journal.

The PRESIDENT then proceeded to deliver his address, in the course of which he remarked that not only had the Iron and Steel Institute devoted a considerable portion of its proceedings to the record of achievements in foreign countries, but it counts among its members foreign metallurgists and others connected practically with the treatment of iron and steel, who, although not able frequently to attend its meetings, appear through their adhesion to appreciate its labours. He referred to the loss sustained by the deaths of Messrs. Bolckow and Thos. Whitwell, and having alluded to the success of the Liége meeting, in 1873, continued—We are now for the second time assembled upon foreign soil, having accepted the invitations kindly given us by the Institution des Ingenieurs Civils, by the Société d'Encouragement, and by the directors of the Conservatoire des Arts et Métiers. When at Liége we found ourselves in the midst of a great iron producing district, an advantage which we cannot boast of on the present occasion, inasmuch as in Paris and the departments immediately surrounding it iron and steel industries are conspicuous by their absence. On the other hand, we have the advantage of meeting at one of the greatest centres of intelligence in all branches of knowledge, including those in which we are particularly interested, and of finding at the Universal Exhibition opportunity of viewing the mineral and manufactured produce of nearly all civilised nations brought into juxtaposition so as to facilitate comparison between them, although allowance must, of course, be made for the limited space and imperfect arrangement appertaining to the greater part of the exhibits other than French.

Eighteen months have now elapsed since I had the honour of addressing you upon assuming the office of President of this Institution, and I then referred to the already depressed condition of the steel and iron trade throughout the world, and but few of us would have thought at that time, that so far from selling prices having reached their lowest point, they were only upon the middle of a descending incline. Among the causes which I then enumerated for the current low prices, I assigned the first place to foreign competition, an opinion the merit of which you will have ample opportunity of testing at the present meeting, when we hope to discuss matters of great interest to both the British and foreign ironmasters. The challenge given by France to the industrial world through her Universal Exhibition, and the special invitation which our Institute has received from the French engineers and metallurgists to meet them in friendly discussion of the methods adopted in both countries for the attainment of ever-improving results, shows a confidence on their part that they have matters of interest to place before us; and if any one of our members should still have any doubt in his mind regarding the recent advance in French practice, I am satisfied that the opportunities he will have of visiting some of the leading works in this country will satisfy him regarding their advanced condition. We shall go home, I doubt not, with the conviction that we have returned from a visit to formidable rivals in the markets of the world; but we shall return home with the further conviction that those formidable rivals have behaved to us most generously in giving us access to their secrets of success, and that in reality we may look upon them as friends, whose rivalry is productive of that stimulus to further exertion without which we should not probably have made those remarkable advances in the means of cheapening production which are the characteristic features of our more recent achievements.

England must for a long time retain the first position for massive and cheap production, whereas we shall probably find that our neighbours excel in the aptitude they evidently possess for adapting new materials to particular purposes, of which the present Exhibition furnishes us with so many striking examples. Again, whilst the English, to realise a novel proposition, make bold attempts not always carefully matured beforehand, the French systematically study a question in all its aspects, and fortify their views by careful enquiry into the experience obtained elsewhere before they commence operations, which are then carried out with all the economical and other advantages resulting from such an exhaustive preliminary enquiry. If we seek a cause for the remarkable aptitude of adapting means to special ends, to which I have referred, we shall probably find it in the advantages France and other continental countries have enjoyed for at least a generation of a more extended technical education than we could boast of, and of the personal influence which has been exercised by a line of scientific writers and experimentalists, of whom I shall only mention here such honoured names as those of Réaumur, Ebelmen, Régnault, Pouillet, Péclet, Thomas, and Le Châtelier, as belonging to the past, and of Deville, Grüner Lan, Lamé, Jordan, Frémy, and Dumas, who are fortunately still among us. It is chiefly to such men as these that France owes her admirable system of education, which enables her to place her metallurgical establishments under the guidance of men who are scientifically qualified for the discharge of their respective duties and for the attainment of practical results which may well excite our admiration.

After referring to the educational establishments of France and to the schools of Creusot, Terrenoire, and elsewhere, the President concluded by observing that the papers presented for discussion are of a highly interesting character. Foremost amongst them stands that of M. Jordan, "On the Iron Ore Resources of France," from which we shall gather a great deal of valuable information regarding the distribution of the mineral wealth of this country, and the system and methods generally adopted for the production of those highly-finished materials and appliances that meet our view in passing through the French portion of the Exhibition. We shall have a paper from M. Marché dealing with general questions of interest regarding the application of steel, and another from our own member of council, Mr. Adamson, giving an elaborate series of tests of that material, showing to what extent it may be relied upon in its application to the construction of boilers and for other engineering purposes. Prof. Akermann will enlighten us on the present state of iron and steel manufacture as judged from the Paris Exhibition, and there are other papers on special subjects by M. Périssé, Mr. Rothwell, and Messrs. Thomas and Gilchrist opening up ground for discussion.

Bearing in mind the important communications just alluded to I shall not venture to take up your time with any elaborate observations regarding the iron and steel industries of the country you have come to visit, and it remains for me in conclusion of these introductory remarks only to express our high sense of appreciation of the kind and hospitable manner in which we have been received, and to assure our hosts beforehand that, although we stand in a certain degree as rivals towards them, as we stand also as rivals of one another amongst ourselves, we come among them animated with that kindliness of feeling and that desire to exchange knowledge and experience which does not preclude friendly sentiments and even admiration on our part for the achievements of our confrères. These intercommunications must lead ultimately not only to the cheapening of the cost of production, but chiefly to the attainment of fresh starting-points in the application of iron and steel for the useful purposes of man.

THE RESOURCES OF THE IRON MANUFACTURE IN FRANCE.

BY PROF. S. JORDAN, OF PARIS.

This paper being really a condensed note-book it is, therefore, almost impracticable to give an outline of its contents. The author states that he does not propose to give even a summary statement of the iron manufacture in France, but has endeavoured to produce a brief hand-book of a nature to enable his English colleagues at their first meeting in France to form a tolerably exact idea of the resources of its ironworks.

The principal coal-bearing districts in France are of more or less importance. The Northern coal district, which extends over a part of the Departments of the Nord and Pas-de-Calais, from the Belgian frontier up to and beyond the City of Bethune, and more particularly in the environs of Valenciennes and Douai. Amongst its more important collieries may be mentioned those belonging to the Anzin, Vicoigne, Aniche, Escarpelle, Lens, Noeux and other mining companies respectively. The coal series comprises a rather large number of strata, generally varying in power from 0·50 m. to 1·00 m. Mention may here be made of the frequent corrugations, which on several points enhance the working cost. The district in question is worked by means of shafts which in one case—the Chauffeur pit, near Valenciennes—are sunk at not less a depth than 680 metres. Various kinds of coal are produced, including close-burning anthracite coal, smith's demi-coal, and smith's coal, suitable for making coke. These coals vary also as regards cinder, and the like observation applies to the coke produced. Two kinds of coke are made in the Department of the Nord—the washed coke, containing 7 to 8 per cent. of cinder, and the unwashed, containing 12 to 14 per cent., and sometimes more. This coal country has the advantage of possessing a great number of railways and canals in connection with the Seine, Marne, and Meuse, so that its products are conveyed a considerable distance.

The Burgundy coal district occupies a portion of the Department of the Saône and Loire, between Autun and Charolles, its principal pits being those of Blanzy, Epinac, and Creusot. There are but few strata, and those of somewhat varied characteristics, the thickness being not unfrequently considerable, while the seams are worked by means of shafts sunk to a depth of 250 or 300 metres or more. At Blanzy two great seams are worked, 5 to 15 metres in thickness, with no great incline; at Creusot there is an almost vertical layer, of an average thickness of 9 to 10 metres, and at Epinac a special pneumatic apparatus is at work, the shaft

being some 700 metres in depth. The Creusot coal, according to the society's official translation, "is nearly anthracite, but it undergoes a change at Au, where it becomes very inflammable, and to a certain extent adapted for coke, without, however, being really a fat or smith's coal;" but the French original says nothing whatever of the kind. What the author states is that "the nature of the almost anthracitic coals at Creusot is changing into one where they become very flaming, and in part suitable for the manufacture of coke, without at any time being really b tuminous." The small kind has to be washed, in order to form coke, with 12 per cent. cinder. The Creusot coal is not suitable for carbonisation, except when mixed with a considerable proportion of smith's coal, of the St. Etienne class. The coal country in Burgundy is traversed by the Paris, Lyons, and Mediterranean Company's lines of railways, and by canals forming junctions with the Loire and the Rhone.

The Central coal district is situated in the Department of the Allier, and the principal pits are those near the town of Commentry, and the village of Bezenet. A fine layer with but little incline, and an average thickness of (say) 14 metres, is worked at the former place, a d a somewhat irregularly form-d bed at the latter. The product is inflammable and gaseous, and yields a rather light kind of coke, which when produced from washed coal contains 10 to 12 per cent. of cinder. The means of transport here are the Orleans Railway and the Berry Canals. To the main portion of the district referred to may be attached some small outlying pits, such as the St. Eloi Mine, in the neighbouring Department of the Puy de Dôme, supplying coal and coke, with a good proportion of cinder; the Champagnac Mine (Department of the Corrèze), which is not yet worked, and the Deuze Mine (Department of the Nievre), belonging to the Creusot Works, and producing a long flame kind of coal, unsuitable for coke.

Next to the coal region of the North the Loire district is the most important, more especially in the vicinity of St. Etienne and Rive de Gier. It comprises a number of beds of no inconsiderable extent, the depth or thickness of which is calculated at 50 to 70 metres, the total extent of the coal formation being about 1800 metres. The working of these layers is rendered difficult and costly at times by accidental circumstances, and by out-throws, excavations, or corrugations. The most important pits are those of Firminy, Montrambert, Ricamarie, St. Etienne, and Rive de Gier, which supply coal fit for any metallurgical purposes—gas coal, coke coal, *maréchale* coal, and inflammable coal. The proportion of cinder in the coke obtained from the small washed coal is generally 12 to 13 per cent. The St. Etienne and Lyons Railway affords the means of transport to the Rhone, as well as to the network of the Paris, Lyons, and Mediterranean lines.

The Aveyron coal district is situated in the Department of the same name, and the chief pits are those of Decazeville and Aubin. The layers are nearly horizontal, and of but little depth, but the product is generally overlaid with earthy matter not unfrequently to the extent of 25 per cent. or more The coal here has to be carefully washed, in order to obtain such a kind of cokeas would be suitable for use in blast furnaces. This coke, which is of but little density, generally contains from 10 to 12 per cent. cinder. The product of this district is mainly disposed of to the inhabitants of the neighbourhood, but it also finds an outlet in the direction of Bordeaux, thanks to the Orleans Railway and to the navigable rivers the Lot and the Garonne.

The Alais coal district ranks as the third in importance of the coal districts of France, and is situated in the Department of the Gard. The principal pits are those of Grande Combe, the Portes, the Alais, and Bességes, worked either by shafts or open air galleries. The seams differ in extent (from 0·30 m. to 2·0 m. in thickness), and yield sundry kinds of coal, varying from the anthracite to the flaming sort—passing over the intermediate rich and half-rich qualities suitable for coke. These coals are superior as regards purity to those of Aveyron, but inferior to those of the Loire, so far at least as cinder is concerned. Coke of good quality and with but little sulphur is made from the small washed sort, with 14 per cent. cinder in the kinds destined for blast-furnaces. The coal of this district is dispatched to the South of France by the Lyons, Marseilles, and Cette lines of railway.

Besides these six chief coal districts there is a certain number of smaller ones in France, which are not all worked, in consequence of the want of cheap transport, and which are of no great interest to the ironworks. As regards the centre of France mention may be made of the Brassac district in the Haute Loire (which sends its forge coal as far as Creusot) and the Ahun district, Department of the Creuze, also producing coke coal, and supplying two or three smelting works in the neighbourhood. In the east of this country the Ronchamp coal formation, situate on the southern slope of the Vosges, Department of the Haute Saône, furnishes a certain amount of fuel to the Franche Comté Ironworks. In the southwest the Carmaux Colliery, Department of the Tarn, supplies coke to some ironworks, particularly those near the Pyrenees, and the Graissenac (Herault) deposit produces coal fit for coke. The price of small coal used for grate heating varies at the pit's mouth from 13 to 19 fr. per ton, according to quality, and also according to the character of the collieries. Large sized coal is not employed in metallurgical works The cost of coke varies from 20 to 27 fr. per ton at the pit, according to the cleanness of the article and reputation of the coal bed. In addition to the fuel from French collieries the French metallurgical works import coal and coke from foreign countries, as, for example, from England (the cargoes being discharged at the channel and ocean ports), as well as from Belgium and—*via* the Belgian frontiers—Westphalia. He might even name an establishment in the south-west of France which receives its coke, *via* Rotterdam and Bordeaux, from the Ruhr carboniferous district (Essen, in Westphalia). In round numbers, the coal production of France may be set down at 17,000,000 tons a year.

It is not easy to describe briefly the resources of France with reference to iron ores, as the deposits, although numerous enough, are greatly disseminated, whilst they are also of but little importance compared with those of England or Scotland. Except in the solitary case of the great oolitic formation in the east of France, there are no such ores capable of feeding any considerable number of blast furnaces on a large scale as the blackband of Scotland, the red hematites of the Lake country, the carbonated ore of Cleveland, &c. The magnetic and oligistic ores are of no great importance in France for supplying smelting-works; but mention may be made of certain ores in the Pyrenees, the most important being such as are supplied to the blast furnaces of the Department of the Arriège, and worked at Puymorent. These ores are found in beds alternating with thin strata of mica schist, and resting on the primitive granite. They are magnetic, yield 56 per cent. of iron, with a certain proportion of manganese, and contain no appreciable quantity of sulphur or phosphorus. Magnetic or oligistical ores are found elsewhere in the Department of the Arriège, especially at Rivernert, near St Girons, in the so-called Vallée de Vic of Essos; also in the Eastern Pyrenees (Department of the Pyrénées Orientales), around Mount Canigon, in the Val d'Andorre, but no deposit can be specially mentioned as of practical importance.

The most important deposit of red hematite is in the Department of the Ardèche, near the towns of Privas and La Voulte, and it is supplied to the respective blast furnaces of the Horme, Terrenoire, La Voulte, and Bességes Companies. This bed—an extensive one—is formed by strata between the lower oolite and the superliasic marl. The ore varies in character, from the red hematite, with a conchoidal fracture, and of agate-like texture (containing 56 per cent. of iron), to the schistous and oolitic hematite, with only 30 per cent. It is not unfrequently somewhat sulphurous, and sometimes also slightly phosphoric. The ore deposits chiefly worked are those of Veyras, Privas, and La Voulte. The production in 1873 amounted to 260,000 tons, and probably there has been no increased yield since that year. These red hematites of the Ardèche have a bearing very different from those of the north-west of England, where they are found in older formations of soil. In the Aveyron they are also raising for the Decazeville Works a red hematite from beds below the liassic formation, but the deposit is of small extent. It is pure, with a quartz gangue, and yields on an average 40 per cent. of iron. In the Pyrenees we find also red hematites in connection with the extensive beds of brown hematites and sparry iron of that mountainous region, but the author has no special knowledge of any of those deposits.

The carbonated ores so abundant in Great Britain, either in the form of the claybands and blackbands of Wales, Staffordshire, and Scotland, or in that of oolitic or Cleveland stone, are, on the contrary, very scarce in France. It is true that in some coal districts, for example in the Departments of the Aveyron and the Gard, one meets with iron carbonates, kidney shaped, or in layers connected with the coal, but they are not in sufficient quantity to be worked to any extent. Occasionally they are found to be too phosphoretic for any practical use, and this, for example, is the case at the Bezenet Colliery. The carbonated ores of Palmesalde (Gard) and of Combes (Aveyron) are, it is true, turned to some account in the blast furnaces of the neighbourhood, but only on a trifling scale. On the other hand, there are sufficiently important deposits of spathic iron in the Alps and Pyrenees.

The sparry or spathic iron worked in the Department of the Isére has for many years past been supplied to the few and unimportant works scattered up and down that slope of the Dauphiny Alps; but it is only recently that patiently conducted researches, over a period of several years, have demonstrated the importance of the great bed at Allevard, of which Messrs. Schneider and Co. are now the proprietors. The Pyrenees abound in excellent spathic iron, as well as in so called soft mines (soft ores), formed by the decomposition of the iron carbonates in question. Unfortunately for industrial pursuits the deposits are for the most part too far removed from any cheap means of transport. In the Department of the Eastern Pyrenees (Pyrénées Orientales), on the contrary, considerable deposits are found on the slopes of Mount Canigon, on the Mediterranean side. The principal are at Thorrent and Sahorre, belonging to Messrs. Jacob Holtzer and Co., and at Filiols, the property of Mr. Philipart—the last-named mine chiefly supplying decomposed carbonates. These excellent ores, free from sulphur and phosphorus, contain from 45 to 55 per cent. iron, and from 2 to 4 per cent. manganese, with a gangue which is not unfrequently fusible, *per se*. Notwithstanding their purity they are roasted in the works of the neighbourhood, and even washed by exposure to the rain during two or three months.

Brown fibrous hematites, always more or less manganiferous, free from sulphur, and with only a trace of phosphorus, have been worked during a very long time in the Perigord district, Department of the Charente and the Dordogne. They are supplied to the works in that part which has always been celebrated for the quality of their castings and iron. But the quantity is inconsiderable, and the beds are, moreover, at some distance one from the other. In the Department of the Charente we have the Guillot and Grosmot ores (36 per cent. of iron) and those of Taponnet (44 per cent. of iron) used at the Ruelle charcoal blast furnace belonging to the Naval Department of the Government; but the working of those deposits, although formerly carried on extensively since the owners of charcoal furnaces—the only ones of practical use in those parts—were obliged to extinguish them.

The most considerable deposit of oolitic ores in all France is the great iron ore field, which, having its origin in the Belgian portion of Luxembourg, extends through Lorraine up to and beyond Nancy, in the valley of the Upper Moselle. It occupies the upper part of the lias formation, or, according to some geologists, it belongs to the lower oolitic state. The bed, which is sometimes uniform and at other times sub-divided, has a depth or thickness varying according to the marly intercalations from 2 to 35 metres. It rests direct on the super-liasic sandstone, and is covered with a vast jurassic plateau. Notwithstanding the physical resemblance of the ores in question to the Cleveland stone they are not carbonate but oxidated hydrated ores. They are composed of small grains, generally of the size of a pin's head, and agglutinated by a calcareous or argillaceous cement—the whole being coloured grey, yellow, brown, or red by the oxide of iron. In some parts, at Havange for example, they are of a greenish colour, displaying a silicate of protoxide of iron. The composition of the ores is far from being an unvarying one. Their yield of iron ranges from 30 to 35 per cent.; the gangue is sometimes clayey and sometimes calcareous; the proportion of phosphoric acid, feeble enough at times, not unfrequently goes up to 1 per cent., and this is especially the case in the calcareous ores, and in some parts even as much as 1·25 per cent. has been found With regard to sulphur, traceable to the existence of some pyrites, it is only feebly but still sensibly manifested in the ores of the Moselle, but it disappears altogether from those of the Haute Moselle. By making a careful classification and selection of the productions of the various layers skilful ironmasters succeed in manufacturing iron of very good commercial quality out of the ores in question, notwithstanding the presence of phosphorus.

[*To be concluded in next week's Journal.*]

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY (Limited).—Advices received Aug. 31, 1878, ex Guadiana (s.), dated Morro Velho, Aug. 23:—

GOLD PRODUCE FOR THE SECOND DIVISION OF JULY—a period of eleven days, amounts to 12,263·9 oits., equal to 1413·8 ozs. troy. It has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
General mineral	7,955·0 from	1482 =	5·367
do Praia	1,226 8 ,,	252 =	4·868
Mineral free from killas	2,449·0 ,,	304 =	8 023
	11,630·8 ,,	2038 =	5·707
Retreatment	633·1 ,,	— =	·310
Total	12,263·9	2038 =	6·017

Equal to 1413·8280 ozs. troy = ·6936 oz. troy per ton.

Advices received Sept. 14, 1878 ex Neva, dated Morro Velho, Aug. 18:—

GENERAL OPERATIONS.—The produce return and yield per ton of mineral differs but little from that for the month of June.

The proportion of pure mineral treated continues small compared to that of the middle and low grade raised from the eastern reserves under roof, and the several works of exploration now in hand.

GOLD PRODUCE FOR THE MONTH OF JULY.—The gold extracted during the above period amounts to 34,884·3 oits.=3959·9155 ozs. troy. It has been derived as follows:—

	Oits.	Tons.	Oits. per ton
From general mineral	21,904 5 from	4269 =	5·131
,, ditto Praia	8,516·3 ,,	727 =	4 836
,, mineral free from killas	7,367·8 ,,	1027 =	7·174
	32,788·6 ,,	6023 =	5·444
Retreatment and sundries	2,095 7 ,,	— =	0·348
Total	34,884·3 ,,	6023 =	5·792

REDUCTION DEPARTMENT.—The re flooring of the amalgamation strakes is now complete, together with an entire new series of sand water launders. From the sand and earthy matter therefrom obtained 875·5 oits of gold and 324 lbs. of quicksilver have been so far recovered.

The importance of this work cannot be too highly estimated, the confined, leaky, and uneven rotten surface causing a high percentage of loss in both gold and mercury. The returns from the recreatment of the sand since the completion of this work show important gains.

The new appliances at the Praia for an extended and more perfect treatment of the large body of residuary sand are kept constantly at work, and sand and slimes in separate and various stages of concentration are now being experimented upon.

MECHANICS' DEPARTMENT.—A thorough resurvey of the water sheds, existing regos, and present distribution of the water system has been made. The information thereby gained is of a most encouraging nature, and it is expected that within the next 12 months most important additions can be made both to the mine and reduction machinery.

COST AND PROFIT.

Produce	34,884 3 oits.	
Less loss in melting	135·2 ,,	
	34,749 1	
Recovered from crucibles, &c.,	95·7	
	34,844·8 at 7s. 9d. per oit. =	£13,502 7 2¼
Cost		7,584 2 7¼
Profit for the month		£ 5,918 4 7¼

The labour charge the mine department is higher than that for June by nearly 300*l*, but owing to the insufficiency of water the full benefit therefrom is not represented by the present return of produce.

Mineral raised from the mine	6916 wagons.
,, quarried per borer per diem	2·02 ,,
Average number of borers daily	126 68
,, ,, natives ,,	224·41

The above return is an increase both in the number of borers and natives compared with last month The output of mineral is higher by 763 wagons.

SUMP AND STOPES 278 "A" AND "D."—Since the extension of the "A" shoot the sump has been sunk 6 feet without any alteration in the general condition of the lode at this point. The intrusion of killas at 278 "A" is not so marked; such variations may be expected as the stopes approach the western or mi idle sections, where the lode is less productive, and divided with killas.

AT 257 "C" the level through 254 "C" and "D" referred to in last report has been commenced. Besides forming a communication with the extreme western sections the intersection of the rich body of lode met with in 255 "B" is also looked for. As previously stated this work is of the greatest importance, not only for a more extensive development of the we-tern discovery but to better regulate the quality and output of mineral sent to surface.

WESTERN SECTIONS.—From the large stope 255 A and D the extraction of good mineral has been very large, with no decrease in the area of the pure mineral contents. For an extended and more uniform distribution of the stopes in these sections a temporary inclined hauling shoot in connection with B shaft is now being made, and when finished will greatly assist the present limited stoping operations at 234 B.

A CROSS-CUT TO OLD MINE.—Owing to the large accumulation of detached pieces of rock and heavy stull timber but little insight has been obtained as to the extent and nature of the crush at this point. Towards the bottom of the East Cachoeira the block appears to be less, and an attempt will be made to reach that point so as to ascertain the weight and condition of the burden.

The unwatering of the old sections has proved a great gain, as the pressure therefrom against the unsecured wall was very great. B shaft has been sunk 12 ft. 5 in., and the cross-cut to the same from 255 D has been advanced 7 ft.

The foregoing and other unproductive works, temporarily causing a great increase in the cost per month, are of great importance, and from which in future lasting advantages will be gained. At no period since the re-opening of the mine has so much exploratory work been done.

GOLD EXTRACTED TO DATE.—The produce for the first division of August, a period of eight days, amounts to 9003·7 oits.=1037·9 ozs. troy. It has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
General mineral	5,7 6·0 from	1003 =	5·738
,, ,, Praia	835·2 ,,	167 =	5·0·1
Mineral free from killas	1,996 0 ,,	288 =	6 930
	8,587·2 ,,	1458 =	5·889
Retreatment	416·5 ,,	— =	·2·6
Total	9,003·7 ,,	1458 =	6·175

MINE.—The return for the first fortnight of August, a period 14 working days, is as follows:—

Mineral raised from the mine	3455 wagons.
Mineral quarried per borer per diem	2·35 ,,
Average number of borers per diem	104·64
Average number of natives per diem	183·57

No alteration to advise either in the western or eastern sections.

The gold troop was dispatched Aug. 12, taking 44 bars of gold, weighing 69,257·8 oits. = 7984·2952 ozs. troy.

N.B.: The gold has duly arrived.

The following telegrams have been received:—

Aug. 19.—Produce for eight days (first division of August) 9000 oits.; yield 6·1 oits. per ton. Duty of stamps short from short supply of water.

Aug. 26.—Profit for the month (July) 5900*l*. All going on well.

Aug. 30.—Produce for eleven days (second division of August) 12,750 oits.; yield, 6·3 oits. per ton.

Sept. 11.—Produce for the month (August) 35,000 oits.=13,562*l*.; yield, 6·0 oits. per ton, equal to 7·5 by old measurement.

Sept. 16.—Produce for eight days (first division of September), 8250 oits.=3197*l*.; yield, 5·8 oits. per ton, equal to 7·2 by old measurement. All going on well, but duty of stamps short, from short supply of water.

DON PEDRO NORTH DEL REY (Gold).—Report for July: Produce from 2211·15 tons, dry weight, 1758 oits = 747*l* 3s.; cost, including all general expenses, 2112*l*. 10s. 10d. Capt. Vivian reports under date August 17:—Produce amounts to 538 oits., which I regret to state is still small, but, judging from present appearances of the various points in operation, I have every confidence that the produce will now increase.

— Telegram from Rio, dated Sept. 7, referring to a later date than the above report, advised 1600 oits. for the month of August.

— Telegram from Rio, dated Sept. 16: No. 8 shoot below the 35 drained.

SANTA BARBARA (Gold).—Mr. Hilcke, Pari, Aug. 16: During July 1131 tons of mineral were stamped, producing 4036 oits. of gold, and 65 tons of refuse sand re-treated by the pulveriser, yielding 30 oits. of gold, or a total of 4066 oits. of gold, equivalent to 3 595 oits. per ton of stone stamped. The produce of 4066 oits., valued at 8s. 6d. per oit., amounts to 1728*l*. 1s., and the estimated working cost for the month at exchange 23¼*d*., being 1100*l*. 9s., leaves an estimated profit of 627*l*. 12s. for July. Mr. Hilcke reports that no notable changes have occurred in the general aspect of the lode during July, it maintained its favourable appearance and value at all the places of operation, only at No. 4 stope the lode does not improve as hoped: it continues to carry an unwonted large portion of coarse and unproductive matter. The mine captain reports that the quantity of ore raised during the month amounted to 1419 tons, of which 288 tons were rejected as refuse stone, and 1131 tons treated at the stamps, 65 tons of refuse sand re-treated by the pulveriser producing 30 oits. of gold. Average quantity of ore raised per borer for the month 3·4 6 tons.

PITANGUI (Gold).—Mr. T. S. Treloar (Pitangui, Aug. 17) reports—That the adit had been advanced 9 fms. 3 ft. The Figurra at this point continued very favourable up to the 17th inst., when a fresh stream of water was cut, making the ground soft enough to require some heavy timber work. There is visible at surface a small branch of blue clay; this extends down to the adit, at which depth it attains a thickness of from 8 to 10 ft., and is so excessively soft that the utmost care is necessary in dealing with it, and elaborate timberwork required to prevent a run taking place. The yellow pigarra is again coming in; this, however, is not so troublesome as the blue clay; it is also soft, owing to the quantity of water accompanying it, and driving in it cannot be so rapid as could be wished. The prosecution of the shaft proceeded steadily until the 8th inst., when it became imperative to suspend operations, in order to put all hands in the adit, and was resumed on the 29th inst., with a small force, and has been sunk 3 ft., and the water is nothing to speak of.

SIERRA BUTTES (Gold).—Result of the working at the Sierra Buttes and Plumas Eureka Mines for August:—Sierra Buttes Mine: Total receipts, $28,7 8; total expenses, including cost of mining and milling, $21,395.—Plumas Eureka Mine: Total receipts, $33,369; total expenses, including cost of mining and milling, $18,025. During the month $12,600 have been spent on improvements.

LONDON AND CALIFORNIA.—The clean-up at the Original Amador Mine for the month of August is estimated at $5500.

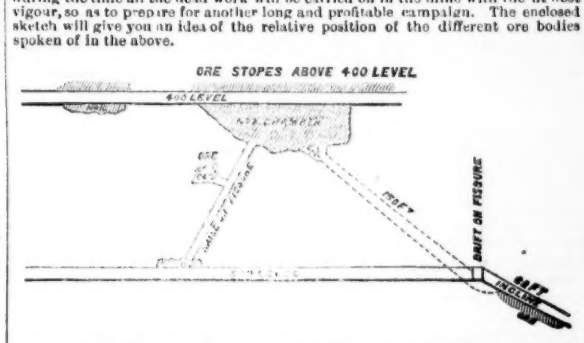
PLACERVILLE GOLD QUARTZ.—The directors have received the following telegram:—Have crushed 70 tons more, yielding $13 per ton.

GOLD RUN.—J. A. Stone, August 26: Herewith I enclose my accounts to August 20, showing a balance in my hands of $184·41, also a statement of the last run, the expenses of which were very large in comparison to former runs, caused by the blast being exploded over the incline and filling it, which took considerable time and expense to open again. The actual washing time was 21 days, showing the gravel to be good, and still improving. I also enclose a statement of the liabilities now outstanding, which amount to $17,289·26; it may seem to be a large amount, but I have all confidence that I shall be able to wipe out the full debt in one run from bedrock and bottom gravel when I get opened so that I can move the giant down to the bottom, so as to take advantage of the washing. I shall then be in a position to wash as much bottom gravel in one run as I have in all the washing during the past season. I am now engaged driving powder drifts in preparation for the coming winter. I have not yet come to any agreement with the Miners' Ditch Company to furnish me power to drive a Burleigh drill, but think I shall. I will soon prepare my annual report.

COLORADO UNITED.—Sept. 17: In letter dated Sept. 1 the superintendent advises that the mine continues to look very well, and that the dressing works would be running that week by water power. He relies to return from the mill alone the sum of $2700 per week; this of course exclusive of the sales of first and second class ore made direct from the mine.

RICHMOND CONSOLIDATED.—August 28: Since my last operations in the mine have been carried on with usual regularity, and with good success. The improvement I spoke of last week in the appearance of the ground in the 500 on the fissure has opened out well. A winze was started, and has been sunk 6*2* ft. on the dip of the ore; the first 25 feet was in broken up ground with occasional stones of ore, the last 37 ft. sunk is in very good ore, and the present bottom of the winze is in yellow carbonate with a streak of black varying from 6 in. to 2 ft. in width; the winze is being sunk on the hanging-wall of the ore body, and the pitch of it is 20°, so to attain a perpendicular depth of 100 it will take 280 ft., or about, on the incline. A winze has been sunk from the bottom of the No. 7 chamber below the 400 26 ft. in ore; the bottom of it has struck the footwall, which is pitching towards the new discovery in the 500, and taking the angle of 20° it will strike the ore body in the 500. Taking these two points into consideration it is fair to presume that there will be a connection in ore between these two points, which is a distance on the incline of 150 ft.; according to the present appearances there is a large body of ore between the No. 7 chamber and the new discovery in the 500.

Last week a drift was started on a small seam of ledge matter; after drifting about 18 ft. it holed in a cave, with very fine ore standing in the side and roof; according to the present look it will connect with No. 10 chamber, distant about 80 ft. There is nothing new to report from any of the other parts of the mine. On the whole, the future prospects of the mine never looked more encouraging. The air-compressing machinery has not yet reached here; it was shipped from Fitchburg (Mass.) on the 10th inst.; we are expecting it daily. All other supplies, such as air pipes and reservoir, have arrived, the latter being ordered from San Francisco. The furnaces will be closed down for repairs on the 31st inst., and during the time all the dead work will be carried on in the mine with the utmost vigour, so as to prepare for another long and profitable campaign. The enclosed sketch will give you an idea of the relative position of the different ore bodies spoken of in the above.



CAPE COPPER.—The Ookiep and Trial Mines reports are received.—Returns for July: Ookiep, 975 tons of 31 per cent.—Bills of Lading Received 40 tons per Warwick Castle.—Arrivals at Port Nolloth: The Argo, San Jose, Mary Bowen, and Taona.—Arrivals at Swansea: The Goleonda and Antonio Vinent.—Sale of Ore by Public Tender: On Aug. 21 500 tons, at an average of 11s. 11¾*d*. per unit, realising approximately 905*l*. We have put forward for sale 680 tons on the 19th inst.

— The Spectakel report for July is received, and also a letter dated August 16, from the chief mining agents, on the progress at Ookiep since last report of July 31. They report—The 29 winze below the 80 has fallen off a little. An improvement in the 83 south from No. 21 winze. The cross cut south in the eastern extremity of the 68 fm. level has greatly improved; worth 5 tons of ore per fm. The 68 fm. level, east from under new shaft, looking very kindly. The stopes are yielding well. Return from Spectakel for June and July together—30 tons of 32 per cent. From Nabibeep for June and July together 30 tons; assay not yet received. Sale by public tender 680 tons of an average of 11s. 9d. per unit, realising approximately 1*l*,350.

PESTARENA UNITED.—Sept. 7: District Val Toppa: In the end south of Zero level, on the caunter branch, there is a slight change in the ground for the better.—Western Lode: The lode in the winze behind the end, north of the intermediate level under Zero, is yielding 5 tons to the fathom; worth on an average 10 dwts. of gold per ton. The stopes behind this end are producing 5 tons per fm.; worth 10 dwts. per ton. The driving of the end south at this level has been resumed; the lode at present is small, but the line of a shoot of ore lately reached in No. 1 level being before this end, on reaching this point an improvement may be expected. The stopes behind this end, or north of winze from Zero level, are producing 12 tons of ore per fathom; worth 14 dwts. per ton. In the end south of No. 1 level, on the western lode, the lode is yielding 5 tons to the fathom; worth about 5 dwts. per ton. The lode in the drive on branch, in west side above this level is producing about 8 tons to the fathom; worth 8 dwts. per ton. The lode in the end south of No. 2 level is small. The stopes in the back of this level south of winze are producing 8 tons to the fathom; worth 8 dwts. per ton. The intermediate drive in the end of the ground under No. 2 level, and south of the first cross-cut westward, has been communicated to the old winze; the lode being of a fair size, a trial of the ore will be made next week. The lode in the end south of winze, on this lode, is producing 8 tons to the fathom; worth about 6 dwts. per ton.—Great Quartz Lode: In the end north of No. 4 cross-cut the lode is yielding 6 tons per fathom; worth 5 dwts. per ton. In the No. 5 cross-cut eastward from the No. 2 level the ore is of low quality. The stopes north of Intermediate level under No. 2 are producing 12 tons per fathom; worth on an average 8 dwts. per ton, and the stopes in back behind the south end are producing 14 tons per fathom; worth 8 dwts. per ton. The lode in the end south of No. 1 cross-cut eastward at No. 2 level is yielding 10 tons to the fathom; worth 8 dwts. per ton; this is a very promising end, and bids fair to open up productive ground.

Flat and New Lodes: The stopes in the back of No. 2 level, south of first cross-cut east, on the flat lode, are producing 10 tons to the fathom, worth 8 dwts. per ton. The lode in the Intermediate drive north, under No. 2 level, is poor, and driving suspended. The stope on the turn of the flat lode, in this drive, is producing 2 tons of ore to the fathom, worth 10 dwts. per ton. In the winze north of fourth cross cut the lode is producing 1 ton to the fathom—low quality ore.—No. 3 Level: The rise on the flat lode, over the first cross-cut westward, is at present unproductive.—No. 5 Level: During the past few days we have reached in the cross-cut westward ground of a lighter colour, which is a favourable indication.—Surface: Val Toppa: Yesterday we tried the working of the carriage-rope from Zero level down to the wire tramway terminus; as yet it is not complete; nevertheless it went very well, and brought down some ore.—Establishment: All the machinery continues in fair working condition:

District Pestarena: The lode in the 100 end north is yielding on an average 1¼ ton per fathom, worth about 1 oz. 3 dwts. of sponge gold per ton. In the 100 end south the lode is yielding 3 tons per fathom, worth 1 oz 3 dwts. per ton.—The 90 Fm. Level: No 1 stopes, in back north, are yielding 6¼ tons per fathom, worth 1 oz. 19 dwts. per ton. No. 2 stopes are yielding 3½ tons of ore per fathom, worth 10 dwts. per ton. No. 1 stope, in the 90 south, is yielding 4 tons per fathom, worth 1 oz. 19 dwts. per ton. No 2 stope is yielding 2 tons per fathom, worth 1 oz. 19 dwts. per ton. No 3 stope is yielding 2¼ tons of ore per fathom, worth 1 oz. 19 dwts. per ton. No. 4 stope is producing 6 tons of ore per fathom, and worth 7 dwts. of sponge gold per ton. The lode in the winze behind the south end is yielding 4 tons of ore per fathom, worth 2 ozs. per ton. The lode in the north end of the 80 is small. The stopes in the back, north of the 70, are yielding 3 tons per fathom, worth 1 oz. 7 dwts. per ton. The lode in the 65 end, south of cross cut, on No. 2 lode, is yielding 1¼ ton per fathom, and worth 10 dwts 15 grs. per ton The lode in the end, north of the 55, driving under the old Acquivite Mine, is small, and at present not to value. No. 1 stope, in back of this level, is yielding 5 tons of ore per fathom, worth 6 dwts per ton. No. 2 stope is worth 10 dwts. 15 grs. per ton. No. 3 stope is yielding 9 tons per fathom, worth 7 dwts. per ton.

Aequavite Department: In the 55 end north the lode is yielding 4 tons per fm., worth 7 dwts. per ton. The stopes in back of this level are yielding at present 2 tons per fathom, worth 4 dwts per ton. We shall have an improvement in this stope shortly. In the north end of the 33 the lode is yielding 2 tons per fathom, worth 4 dwts. per ton. The stopes in back of the 23 are yielding 4 tons of ore per fathom, worth 7 dwts. per ton In the 33 end north, in Peschiera department, the lode is yielding 1 ton of ore per fathom, worth as per small mill trial 3 ozs. 6 dwts. per ton. This end is suspended for the present because we require the men for stoping; driving, however, will be resumed as soon as other men fall in. On the 2nd we resumed the sinking of the incline shaft. All work connected with the new adit is progressing, as also is the covering and closing up of the addition to the picking floors.

GOLD IN AUSTRALIA.—We learn from Melbourne (Aug. 15) that gold has been struck in the Magdala Mine shaft, which is the deepest in the colony, at a depth of 1988 ft. below the surface. This discovery is causing great excitement in gold mining circles. Mining prospects are generally improving.

ENOCH AND RICHARD PARRY.
MINING AGENTS AND SURVEYORS,
MINSTERLEY, SHROPSHIRE.
Mines inspected and reported on at home and abroad.

MR. J. S. MERRY,
ASSAYER AND ANALYTICAL CHEMIST,
SWANSEA.

WATSON BROTHERS' MINING CIRCULAR.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the Journal on the Clementina Mine.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to *recommend* mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fornightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

THE D'ERESBY GROUP.—Since the discovery of the Gorse lode in No. 4 level at D'Eresby Mountain the district has been visited by a great many practical miners as well as by several amateur explorers, but no one has given a more graphic or interesting account than the writer of the article in last week's Journal. It is gratifying also to find that the writer, without any communication whatever with us, has visited the mines, and confirmed the opinion we have expressed from time to time in these columns. The great advantages of these mines, as we have often pointed out, is that no steam power is required to drain or work them. This is a very important fact to consider with the present price of metals, and when to make mines pay the greatest economy must be observed in working them. When ore has simply to be broken from adit levels and trammed to the dressing-floors, the expenses are nothing as compared with deep mines worked by steam. The stonebreaker, crusher, &c., now ready to go to work at D Eresby Mountain, are capable, we believe, of crushing nearly 40 tons a day. There are, it is estimated, nearly 4000 tons of lead stuff broken in the mine. From the Fuschaslas lode the stuff is very rich, nearly solid lead in some instances. From the Gorse lode, which has yielded the greatest bulk of the ore, some may be up to 20, and some very much less, and to be within the mark, we will estimate the whole stuff at an average of 5 per cent. only. Thus if 40 tons of stuff can be crushed in a day of this percentage it would give 2 tons of lead, or (say) 50 tons a month, at a small cost. The machinery and floors can, of course, and will be, extended and added to as required, and it may take some little time yet to get into full play.

ABERLLYN, which the correspondent says "holds out every prospect of becoming one of the most valuable mines in the district," has always been considered beyond a speculation, inasmuch as the blende will pay good profits as soon as the machinery is ready to crush and dress it, while the discovery of lead, which is seldom or ever known to fail under such courses of blende, may make the concern one of the greatest in the district. The erection of the machinery for the blende and lead may cost 1000*l.*, and the company have a working capital in hand of 5600*l.*

At D'ERESBY CONSOLS the grand object, as we stated at first, is to cut the Cobblers' lode, and we advise shareholders to hold on till that has been accomplished, and not be persuaded to sell and put the money into things of which they can know nothing, as some have been.

MORFA DU.—The bluestone has been assayed by Messrs. Claudet, and in order that the assay might not represent a mere sample a box of average specimens was sent up from the mine, and Messrs. Claudet chipped a piece off each stone so as to get a fair test of the whole, and the result is beyond what we expected, particularly in regard to silver, of which there are over 12 ozs. to the ton; gold, 3 dwts. to the ton; zinc, 30 per cent.; lead, 15 per cent.; copper, 3 per cent; iron, 10 per cent.; sulphur, 28 per cent. The agent hopes ere long to raise 150 to 200 tons per month, and the mine, we hope, will then be in a position to pay good profits on the small amount of capital raised. Several applications have been made for the bluestone in large quantities, but the price has not been determined. The company is in 11,250 shares, of 1*l.* each, limited. Of these 7099 were issued, and 15s. per share has been called up.

SATURDAY, SEPT. 14.—Market steady. South Frances and Tincroft firmer. Van, 17⅛ to 18⅛; Great Laxey, 17⅛ to 18⅛; Aberllyn, 11 to 13; Clementina, 1¼ to 1⅝; Roman Gravels, 7⅛ to 7¾; South Frances, 4 to 4⅛, ex div.; Tincroft, 6 to 7; Dolcoath, 21 to 23; West Tolgus, 49 to 51.

MONDAY, SEPT. 16.—Market quiet, and prices for the day are as follows:—Carn Brea, 35 to 45; Clementina, 1⅛ to 1⅛; Devon Great Consols, 2 to 2⅛; Aberllyn, 11 to 13; East Van, 2¾ to 3¼; Great Laxey, 17⅛ to 18⅛; Grogwinion, 2¾ to 3¼; D'Eresby Mountain, 75 to 85; D'Eresby Consols, 10 to 11; Leadhills, 2 to 2⅛; Parys Mountain, 5s. to 7s.; Morfa Du, ⅝ to ¾; Pateley Bridge, 3½ to 4; Penstruthal, 3s. to 5s.; Roman Gravels, 7⅛ to 7¾; Rookhope, 12s. 6d. to 15s.; South Condurrow, 10 to 10⅛; South Frances, 4 to 4⅛, and firm; Tankerville, 3 to 3¼; Tincroft, 6 to 7; Van, 17⅛ to 18⅛; West Chiverton, 5½ to 6⅛; West Pateley Bridge, 1½ to 2; West Tolgus, 49 to 51; Agar, 3¼ to 4¼; Grenville, 2 to 2⅛; Peevor, 5¾ to 6¼; Wye Valley, 1½ to 2; West Wye Valley, 2½ to 3; Eberhardt, 4¼ to 5; Richmond, 8⅝ to 8⅞; Santa Barbara, 25s. to 30s.

TUESDAY, SEPT. 17.—Market for tin shares firmer. South Frances, South Condurrow, and Tincroft in demand. South Condurrow, 10¼ to 10¾; South Frances, 4⅛ to 4¾; Tincroft, 6 to 7⅛; Carn Brea, 35 to 45; Dolcoath, 22 to 24; Peevor, 5¾ to 6⅛; Roman Gravels, 7⅛ to 7⅛; Van, 17⅛ to 18½; Great Laxey, 17½ to 18⅛; Leadhills, 2 to 2⅛; Pateley Bridge, 3½ to 4.

WEDNESDAY, SEPT. 18.—Market for tin shares again firm. South Frances advanced to 4⅛, buyers. Dolcoath, Tincroft, Peevor, and South Condurrow firm at quotations. South Frances, 4⅛ to 5; South Condurrow, 10¾ to 10¾; Dolcoath, 23 to 25; Tincroft, 6⅛ to 7⅛; Peevor, 6 to 6⅛; Agar, 3¼ to 4¼; Clementina, 1¼ to 1⅝; Aberllyn, 11 to 13; East Van, 2⅞ to 3; Grogwinion, 2¼ to 2¾; West Chiverton, 5¾ to 6⅛; Parys Mountain, 5s. to 7s.; Tankerville, 3 to 3¼.

THURSDAY, SEPT. 19.—The Market continues firm for tin shares. Tankerville weaker. Carn Brea, 35 to 40; Dolcoath, 23 to 25; South Condurrow, 10¾ to 11; South Frances, 4⅛ to 5; Tincroft, 6⅛ to 7⅛; Van, 17⅛ to 18⅛; Great Laxey, 17⅛ to 18⅛; Pateley Bridge, 3¼ to 4; Roman Gravels, 7¼ to 7¾; Rookhope, 12s. 6d. to 15s.; West Tolgus, 50 to 52; Tankerville, 2½ to 3.

FRIDAY, SEPT. 20.—Market moderately active for tin shares. Tankervilles firmer, South Frances, 4⅛ to 5⅛; South Condurrow, 10⅛ to 11; Dolcoath, 23 to 25; Tincroft, 6⅛ to 7⅛; Peevor, 6⅛ to 6¾; Aberllyn, 11 to 13; Clementina, 1¼ to 1⅝; Grogwinion, 2¼ to 3; Van, 17 to 18; Great Laxey, 17 to 18; Pateley Bridge, 3½ to 4; East Van, 2½ to 3; Tankerville, 3 to 3⅛.

ACCIDENT ASSURANCE.—The lamentable railway accident at Sittingbourne, followed by the sinking of the Princess Alice on the Thames, has naturally caused the question of accident assurance to receive attention from many who previously had thought nothing about it, and it is, therefore, not surprising that the present should be regarded as a fitting opportunity for renewed efforts to make the advantages of the principle apparent to all. Under the able management of Mr. W. J. Vian, the RAILWAY PASSENGERS ASSURANCE COMPANY has acquired a reputation for stability and fairness which has kept it far in advance of any similar undertakings which have from time to time been established in imitation of it; hence it is very truly observed that accident assurance is no longer an experiment but a great fact. Amidst increasing competition the claims of this company to public confidence are still unrivalled. The primary necessity in assurance is absolute security. Now, besides a reserve fund of 75,000*l.* this company has a paid up capital of 145,000*l.*, and a subscribed capital uncalled of 855 000*l.* in addition. It has paid more than a million and a quarter sterling in compensation. Every week upwards of 100 claims for accidents are settled with promptitude and satisfaction. The widely extended reputation of the company is due to the knowledge that every honest claim is honestly met. The liberal treatment not only of claimants but of all insurers, by giving them a share of the profits in the shape of bonus, is generally acknowledged. It may be mentioned as a curious fact that although several of the sufferers by the Sittingbourne collision were insured, it is understood that as yet not a single claim has come in arising out of the steamboat calamity, although it is known that three of the drowned had held policies which they had suffered to lapse. The benefits of accident assurance are offered by the company at a very small cost, and should certainly be availed of by all classes.

THE WEEK.

SATURDAY, SEPT. 14.—All Turkish stocks were good. Those who for weeks past have been sickening at the repeated drops took courage, and bought more. On the whole, a large business was done for a Saturday, numbers of dealers deserting the other markets to operate in Turks. The Fives advanced to 13⅛ the 1869 and 1873 issues each improving ⅛ per cent. In mines Eberhardt were in good demand, business being done at 4¾. A meeting of the principal shareholders will be held on Thursday next to devise some method for finding funds to go on with the tunnel. East Van, which have for a long time been quoted too high, were put down ⅞, to 3*l.*

MONDAY.—No disposition was shown to renew operations for a rise in Turks. The first transaction in the Fives was at at 12⅞, at which they ultimately closed. The 1869 and 1873 issues were put back to Friday's level. Egyptian Unified also lost ground. Business was done at the commencement at 57⅜, which it left until the last could have been done at 56⅜. Eberhardts rose to 5*l.*, there being strong hopes that the company will be extricated from its present difficulties. Dolcoath, 20 to 25; Tincroft, 4 to 6; Leadhills, 2 to 2⅛; Don Pedro, 10 to 12s. 6d.; Javali, 6s. to 8s.

TUESDAY.—Turkish Fives to-day receded to 12¾. There was a good deal of swaying to and fro in Unified. At one time the price was down to 55¼, after which the bonds continued to recover until 56⅛ was reached at the finish. Many people are of opinion that Turkish Fives are worth 12⅛, but fearing they may fall further they refrain from buying as yet. In mines a good business continues to be done in Eberhardt, Richmond, Kapanga, Colorado, and New Quebrada, all of which keep firm. Bombay Gas, 6 to 6½. Brighton Aquarium, 9 to 9½. General Credit, 6¼ to 7. Government Stock, 13 to 14. Lawes' Chemical, 8¾ to 9¼. National Discount, 10 to 10½. National Safe, 3½ to 4. Odessa Waterworks, 4 to 5. Otago Investment, 1¾ to 2. Positive Assurance, 4s. to 6s. Yarmouth Aquarium, 3 to 4.

WEDNESDAY.—Buyers of Turkish Fives came in, and raised the price to 12¾. Unified closed firm at 57. During the last day or two an advance in Paraguayan bonds have taken place. From being 3*l.* they are now 5*l.* 7s. Holders of Honduras are hoping that their turn will take place next. Mexicans are now neglected at 7⅛, and Greeks have dropped to 18. In mines, Richmonds left off firm at 9, and Eberhardt at 5. After being steady at 4¾, Colorado just at the finish fell below 4.

THURSDAY.—Although tin shows no signs of improvement, a few of the leading mines are quoted higher, but it should be added that the majority of the quotations sent out will not bear the test of dealing. With some there is an idea that if only prices can be forced up for a little time the public will come in and buy, though this does not seem very probable. Several copper shares are now at a figure that could hardly fail to pay for buying now, among the number being South Frances, Devon Consols, South Caradon, West Tolgus, Mellanear, Wheal Creator, Penstruthal, and Glasgow Caradon.

FRIDAY (*Opening*).—The markets have a downward tendency. Turkish Fives are offered at 13. Unifieds have fallen ⅛ per cent., the Preference being 75⅜ to 75⅝. There are one or two changes in mines. At a meeting yesterday of large Eberhardt shareholders an issue of debentures was determined upon. The shares are down 5s. (4⅜ to 4⅝). Richmonds can be sold at 9. New Zealand Kapanga keep very firm, a close price is 1 9-16ths to 1⅝, most of the dealers being buyers. If the return from the mine comes in next week equal to expectations shares may be over 2*l.* Colorado, 3½ to 3¾; East Van, 2½ to 3; Frontino, 2⅝ to 2⅞; Tankerville, 2¾ to 3¼; Javali, 7s. to 9s.——*Two o'clock*—The Unified are now down to 56, or 1*l.* below yesterday. The Preference show a fall of ⅞. Turks are offered at 12⅞. Following the general decline in London gas shares, we have now Bombay gas down to 6, the usual price being 7⅛. London Steamboat, 7⅛ to 7¾. Elbow Vale, 6⅛ to 7⅛.——*Four o'Clock.*—A recovery of ⅛ per cent from the lowest has taken place in Unified, mostly brought about by the usual "closings" for the day. Linares are quoted 3¾ to 4⅛, and Roman Gravels 7 to 7⅛. During the week a little more business has been done in Bilson and Crump, which are now quoted 3 to 3⅛. Newport Abercarn, 4¼ to 4¾; New Sharlston, 3⅛ to 4; Chapel House, 2⅝ to 2⅞; General Credit, 6¾ to 7; National Discount, 10 to 10½.

FERDINAND R. KIRK.

HOW TO INVEST—HINTS TO CAPITALISTS.

For some years past capitalists have been familiar with the various editions of a comprehensive little pamphlet—"How to Invest," by Mr. E J. Bartlett, of Great St. Helen's—carefully corrected from time to time to keep the information in accord with the time, and the eleventh edition just issued affords ample evidence to the reader that equal attention has been given to secure accuracy. The retention of the same arrangement facilitates the comparison of the present with previous pamphlets, and will thus enable the regular readers of it to judge of the accuracy of the author's views. He remarks that most people experience great trouble in making investments from the difficulty of ascertaining how they may do so at once profitably and with safety. They are, in many cases, forced to rely on the opinions of others, and often discover, when too late, that they have made bad choices. It is no doubt always well for those who are not engaged in dealing with stocks and other securities to take the advice of persons who make the stock and share markets their study, as they are thus enabled to take advantage of the fluctuations which necessarily arise, although no persons ought to place themselves and their dearest interests entirely in the keeping of others.

After some instructive observations on trade and commerce generally, there are three readable chapters on British, Colonial, and Foreign Mining Securities respectively, and there are then some excellent remarks upon railways, joint-stock banks, and telegraphs. Next comes a chapter on Coal, in which Mr. Bartlett remarks that coal properties have now for centuries been the prolific source of wealth to numerous owners. Some of the largest among the colossal fortunes which are known in this country have been derived from coal, and the name of the black diamond, which has been so appropriately applied to it, denotes as well its intrinsic value as the general appreciation in which it is held. Coal takes the first place as the source of our national wealth, and of national prosperity. The demand may at times flag for a moment, but it can never permanently decrease. The sudden rise in the price of coal which took place about a few years since called into existence a large number of new colliery companies; but it has not in reality as yet greatly increased the number of collieries. What has rather taken place is a development of existing collieries, and in some cases the re-opening of other which have been temporarily abandoned. The fall in prices in the London market, or even in the principal towns, is no criterion by which to judge of the change in the price paid for coal to the colliery-owner.

It must be admitted that the prices of coal have fallen very considerably, for reasons that he has before pointed out, but he maintains that a good profit is yet to be derived where the management is honest, the district free from bodies of water, and the directorship centred in men whose interest is identical with that of the company. There are good and worthy men at the present day to be found who will undertake the responsibilities of directorship for a trifling remuneration, and embark their capital as ordinary investors. If, before investing, the capitalist would enquire as to the stock held by those in office there would, he thinks, be less cause to deplore loss than has hitherto resulted in many instances in the purchase of colliery shares.

Referring to mining, Mr. Bartlett points out the cause of the present depression in tin and copper mines, and remarks that well selected lead mines offer unusual attractions to investors. What, he says, can be the reason for so many people to regard this class of investment with a degree of suspicion requires thought on the part of advisers. Those who have made large fortunes by great rises in market value and immense dividends do not stand at the corners of the streets and acquaint the world with their wonderful gains, but they do with their losses, and warn others against mining shares, instead rather of blaming themselves for trusting their interests to the care of those who greedily take the commission without thought of the benefit to the client. In case of illness we endeavour to consult with the best physician, in cases of investment why go to men whose names are almost unknown, and whose business is of mushroom growth? Coming in contact with so many disappointed capitalists, he generally enquires the names of those mines in which they had invested, and although he must admit in some cases failure from low-class ores, or other contingencies, still too frequently the promoter starves the property to enrich his pocket, whereas if the mine or mines had been properly conducted fair returns would in all human probability have resulted. He maintains the selection of mining shares requires more than ordinary precaution, but with a conscientious adviser the result would be surprising to the most sanguine capitalist. The public seem now, however, to dwell upon the blanks, and not the prizes. Intending investors are recommended to procure this small but valuable publication.

The London Assurance Corporation will pay a dividend for the half-year ending at Michaelmas, 1878, of 15s. per share, making the dividend for the year 1878 60s. per share, free of income-tax, being at the rate of 24 per cent. per annum. Mr. Robert Henderson has been elected a director in the room of Mr. D. Powell, resigned.

HOLLOWAY'S OINTMENT AND PILLS—A CURE FOR ABCESSES, PILES, FISTULA, AND SORES OF EVERY DESCRIPTION.—The very satisfactory results arising from the use of this invaluable ointment, when the patients have been suffering from any of the above disorders, have induced the Medical Profession to introduce it into the hospitals and their private practice, and in many instances where the sufferer was considered incurable Holloway's ointment, in conjunction with his pills, healed the most desperate cases. They are also unequalled for the cure of scrofula, scurvy, and all diseases of the skin, and the cures they effect are not temporary or imperfect, for by their purifying powers they bring about a marvellous and most beneficial change in the whole system, and enable it, with renovated powers, to resist the approach of all future attacks of the same disease.

Mining Correspondence.

BRITISH MINES.

ABERLLYN.—John Roberts, Sept. 18: We are getting on very well with the deep adit level considering the nature of the work; I hope by next week we shall have completed up to the cross-cut. The blende lode is looking well, and producing occasionally good stones of lead. We shall get on with as much as possible of the surface work before winter sets in.

BEDFORD UNITED.—R. Goldsworthy, W. Phillips, Sept. 12: Setting Report: To drive the 138 east, by four men, at 11*l.* per fathom; lode worth 9*l.* per fathom. To drive the 127 east, by six men, at 10*l.* 5s. per fathom; lode worth 7*l.* 10s. per fathom. Two stopes, one in the back of the 138 east and one in the back of the 103 west, each let at 4*l.* 15s. per fathom, worth on an average 7*l.* 10s. per fathom. The engine shaft has been sunk about 7 fathoms below the 138, where the lode is disordered at present, worth for length of shaft for arsenical mundic and copper 12*l.* per fathom.

BLUE HILLS.—S. Bennetts, P. Bennetts, Sept. 14: The 80 east end on the top lode is not so productive as it has been; at present it is in a floor of soft ground, and the lode somewhat disordered. The east end at the same level on the main lode is worth 7*l.* to 8*l.* per fathom. In the west end on this lode there is no change as yet to notice. The north lode in the 80 east end is opening out very satisfactorily, and producing about ½ ton of tin per fathom.

BODIDRIS.—H. Hotchkiss, Sept. 16: The engine has arrived on the mine; I shall have to alter the feed pipes, put on new breaks, and thoroughly examine it before putting it to work; this, however, will take but little time. Our underground operations are progressing satisfactorily. I notice a slight improvement in the 45 end. In sinking the new shaft we have struck some good lead at a depth of 33 yards, which, I think, will prove to be a valuable discovery, and I shall be able to say more about it towards the end of the week.

CAMBRIAN.—Thos. Glanville, Sept. 14: ESGAIR FRAITH: Eastern Shaft: In the 70 yard level, west of shaft, the part of the lode driving on is composed of carbonate of lime, and will produce 1½ ton of copper ore per yard. In the 70 yard level, east of shaft, we are cross cutting north through the lode, which is composed of carbonate of lime and strong spots of copper. In the 46 yard level, west of shaft, we have in the breast a very strong rib of sulphur, and I have no doubt that at an early date we shall meet with a good bunch of ore. Up to this date we have sent 45 tons of copper ore to Swansea.—ESGAIR HIR: The western shaft has greatly improved since my last report. The lode has become more solid, and contains some very nice lead ore, and has every appearance of an early improvement. We have begun to cross-cut south towards the great lode from the deep adit level.

CLEMENTINA.—John Roberts, Wm. Sandoe, Sept. 18. We are making good progress with cutting the wheel pit for the 10 ft. wheel.

COMBMARTIN.—John Harris, J. Comer, Sept. 19: In the adit end east, on the caunter lode, the lode is 4 ft. wide, made up of beautiful friable quartz and flookan, killas spotted with lead, blende, and mundic, a very promising lode indeed. In the same level west the lode is also about 4 ft. wide, principally of killas, with veins of quartz and flookan, containing a little lead and blende, also a kindly lode. Fair progress is being made in the driving of the adit cross cut, in which we are meeting with nice veins of quartz and mundic.

CWM DWYFOR (Pensarn).—J. Ridge, Sept. 19: Morgan's shaft is now sunk to 21½ fms. from surface. There is no change since my last report, except that more water is coming from the lode in both ends of the shaft. The cost of completing the trial of this lode will be about 138*l.*, which includes driving a level west at the 20 for 12 fms. in length. I think, however, that the ore seen in the bottom of the 10 fm. level will be met with in 8 or 9 fms. driving west, and the ore in the west end of the shaft below the 10 should be met with in 4 or 5 fms. driving, or sooner than that.

DE BROKE.—J. Phillips, Sept. 18: We have laid in sollar in Wilson's shaft at the 55, and commenced to drive east for a lodge. The 45, east of Wilson's (just resumed), is yielding abundance of quartz and sulphur, and is also wet. The 26 east is in a large lode producing good stones of ore, with some crystallised quartz. The lode in the trial drift, driving east below the 25, is improving, but is hard and wet. There is no alteration to report in the stopes, nor in other underground work. The machinery is in good order, and ore dressing going on steadily.

D'ERESBY CONSOLS.—John Roberts, Wm. Sandoe, Sept. 18: There is no change in the Gorse heading. The east and west lode, driving towards Cobblers' lode, is much the same as last week—mixed with sulphur and blende, and letting out a large quantity of water—a very kindly lode. The end on Owen's lode is not yet let.

D'ERESBY MOUNTAIN.—John Roberts, Wm. Sandoe, Sept. 18: The lode in No. 1 is larger and altogether improving. Not that there is more lead, but the blende and lead, mixed with the rich gossan, make it rather better than we have seen it. The No. 3 continues without change to notice. No. 4 stope is still much the same as last week. No. 5 is 54½ fms. south of No. 3 shaft. The water is falling down more to the bottom of the level, which leads us to think we are getting near to the end of the choke. The reservoir embankment is completed, but we have some gaps to stop up alongside of the old working, and the water courses at the head to divert. We have worked the crusher to day, which started well. The rain prevented us from trying the jiggers; not yet being under cover the pulleys, &c., were too slippery.

DENBIGHSHIRE CONSOLIDATED.—R. Prince, A. Francis, Sept. 19: Good progress has been made during the past month with the extension of our permanent levels both east and west. The favourable features in the east continue. The lode in the 112 west is gradually opening out, and is now 12 in. broad, composed of spar, and impregnated throughout with lead ore. There has been a steady and continued improvement at this end of the mine during the month. The driving from the bottom of the 66 sump will in future be designated the 80 yard level. In this we have at last intersected the run of ore ground proved above us, and there is a very good display of lead both in the roof and forebreast, whilst underground to-day myself and Francis cut 2 cwts. of lead from the forebreast, and it was looking better when we left. The tribute pitches have also improved.

DERWENT.—J. Morpeth, Sept. 19: No change in the working on the middle vein, east of Jeffries' shaft, since last report, but west of that shaft Nos. 1, 3, and 4 stopes, in the back of the 93, have all improved. The Sun vein, east and west of same shaft, continues much the same.—Westgarth's Shaft: The 93 east is in itself poorer, but the roof looks kindly. The two stopes in the back of the 74 fathom level are coarser.

DEVON GREAT CONSOLS.—Isaac Richards, Sept. 20: Wheal Emma—Inclined Shaft: In Friend's cross-cut south at the 137 east another portion of the new south lode has been intersected, and so far as cut into—about 2½ ft.—is of a very promising description, being composed of fine capel, quartz, prian, peach, mundic, and some good quality copper ore.—New Shaft, New South Lode: The shaftmen having been engaged about the necessary work in connection with replacing the present drawing lift and fixing the plunger at the 190, but little has been done in sinking during the past week. It will occupy about a week or nine days to complete this work, after which the sinking of the shaft will be resumed with all possible dispatch. In the 190 east the lode—part carrying 4½ ft. wide—is composed of capel, quartz, peach, fine stones of copper ore, and 5 tons mundic per fathom. In the 190 west the lode maintains its great size, and is worth 6 tons copper ore, or 18*l.*, and 7 tons mundic per fathom. In Floyd's winze in the bottom of the 175 east the lode, 5 ft. of which is being carried, is worth for length of winze —9 ft.—6 tons copper ore, or 12*l.*, and 5 tons mundic per fathom. In the 175 west the lode is 4 ft. wide, and worth 2 tons copper ore, or 6*l.*, and 3 tons mundic per fathom. In Hockaday's winze in the bottom of the 175 west the lode is 4 ft. wide, and worth for length of winze—9 ft.—2 tons copper ore, or 6*l.*, and 3 tons mundic per fathom. In the 100 east, on the south part of the lode, the lode is 4 ft. wide, composed of capel, quartz, some good quality copper ore, and 5 tons mundic per fathom. The other points of operation throughout the mines are without important alteration since last report.

DUBBY SYKE.—W. Tallentire, Sept. 13: The level forehead is without change; it is being driven just underneath the limestone, in plate, and a 2 ft. post of lime stone. The vein makes a good show considering the position it is in, and should yield more lead ore in the lime-stone than has as yet been met with.

EAST VAN.—W. Williams, Sept. 18: We have driven the 70 cross-cut, south from shaft, 73 ft.; we have but some 3 or 4 ft. more to thoroughly cross the lode. Nothing worth valuing has been found in the cross-cut. We are leaving two men to drive the cross-cut into the hanging, and the other four men are placed to drive east and west upon the best part of the lode, in which there is a strong mixture of blende and spots of lead ore,

GAWTON COPPER.—G. Rowe, G. Rowe, jun., Sept. 14: The drivage of the 117 east is still continued on the north part of the lode, in the best ground for progress where we calculate to be sufficiently in advance to commence the cross-cut into the south and orey parts of the lode by the end of the present month. The lode in the winze and stope going down in bottom of the 105 is worth 26*l.* per fathom. The rise and stope going up in the back of the 105 is worth 12*l.* per fathom. The lode in the winze sinking below the 93 is worth 14*l.* per fathom. All other parts are without change

GLASGOW CARADON CONSOLS.—Wm. Taylor, Wm. J. Taylor, Sept. 18: We are making fair progress with the sinking of Elliott's shaft: the ground continues favourable, and the men are getting on very well with their bargain. We have about 4 fms. more to sink the required depth for the 102 fm. level. We have not much value to report in the lode in the 90 east yet, but the lode and ground are looking better, and we are expecting daily to see it improve. In the 90 west we are still cross cutting to the north lode; we are preparing to sink a winze in the bottom of the 78 on this lode to come down near this cross cut; the lode is worth from 12*l.* to 15*l.* per fathom. In the 78 east we are still cross cutting south, where we hope to find another part of the lode and better ground; the winze in the bottom of this level, going down some fathoms before the 90 east, is worth 15*l.* per fathom. No other change in driving. The stopes and pitches through out the mine continue to look very well, varying in value from 12*l.* to 35*l.* per fathom. All the workings are being pushed on as fast as possible, and the machinery and pitwork are all in good order, and working well.

GLENROY.—R. Rowe, Sept. 18: The ground at the shaft continues to get harder, and the lode still about 4 ft. wide, showing a little lead and blende. The shaft measured to day 7 fms. 3 ft. below the 80, and re-set to sink at 277. per fm.

GORSEDD AND MERLLYN CONSOLS.—W. Edwards, Sept. 19: In our driving west along the new lode, in the 70, we have, I believe, intersected the Quarry lode, and have driven north upon it about 4 yards, getting a few hundredweights of very nice ore therefrom. There is a portion of the vein bearing west which is leading ahead, an indication that the east and west vein bears through the disturbances caused by the north and south joints. The north cross cut, in the bottom of the shaft, is in about 4 yards, and the same remark will apply to the south cross-cut, and there are indications to-day that the lodes are close handy. The ore on surface is of a very good character, and when the lodes are intersected we shall make good returns.

GREAT HOLWAY.—Sept. 19: The progress with the foundation for the new machinery is proceeding in a satisfactory manner, and at Garden shaft we expect to be through early next week, when we hope to set men to raise ore from this part.

GREEN HURTH.—W. Vipond, Sept. 14: The working below adit on No. 1 cross-vein is yielding at present 16 cwts. of ore per fathom. The east and west vein is still yielding 2 tons of ore per fathom. The branch from Fire Away is very poor, not yielding more than 4 cwts. of ore per fathom. The sump is now down 8 ft. 6 in., and is still perfectly clear of water. We have holed to the opposite forehead in No. 3 cross-vein; it will take a few more days to square this fairy out. We have no change in Jack Quarry level, the vein must still be on the east side of us in the hazel. We finished the delivery of a wagon of ore on Thursday last—7 tons 4 cwts.

HARWOOD.—W. Tallentire, Sept. 13: There is nothing new to notice in the mine; this week the unproductive portion of the vein is nearly squared up. The ore bargain has now expired, and I do not think we can let another bargain at a less price than 10*l.* per bing.

KINGSTON DOWN CONSOLS.—Thomas Richards, Sept. 19: Bailey's Shaft: In the 172 east the lode is composed of capel, quartz, mundic, and copper ore, worth 5*l.* per fathom. In the stope in the bottom of the level the lode is promising, and is worth 15*l.* per fathom. In the stope in the back of the 172 east the lode is worth 40*l.* per fathom. In the 160, west of Nicholl's winze, the lode is more promising, producing some saving work. In the tributers' sink in the bottom of the 160, and the tributers' stope and pitch in the back of the 110, there is no change. In the deep adit the ground is improved, and good progress is being made.

LADY WELL.—A. Waters, Sept. 19: There is no change here worth writing about since my report of last week. Our prospects are just as they have been for the last six months. We have to-day sampled 25 tons lead ore, for sale next week.

LEADHILLS.—Arthur Waters, Sept. 19: Setting Report—Brow Vein: The stope in the back of the 60, south of Glengoa, or engine shaft, by four men, at 30s. per fathom and 10s. per ton for lead ore; the lode is worth ¾ ton per fathom. The stope in the same level, north of shaft, by two men, at 30s. per fathom and 20s. per ton; the lode is worth ¾ ton per fathom. The stope in back of the 20, south of Moffat's winze, north of shaft, by four men, at 50s. per fathom and 10s. per ton; the lode is worth 22 cwts. of lead ore per fathom. Gripps' adit to drive north of shaft, by four men, at 100s. per fathom and 10s. per ton; a kindly lode, but not to value. The pitch in back of Gripps' adit, south of shaft, by two men, at 110s. per ton of dressed ore. No. 2 pitch, south of ditto, by two men, at 110s. per ton. Muir's cross-cut to drive west towards the side lode, by four men, at 16s. per fathom. About 14 fms. further should intersect the first principal lode we are in search of.—Katrine Vein: The pitch in back of Gripps' adit, north of the above-named shaft, by three men, at 110s. per ton.—Dobris Vein: The pitch in back of Gripps' adit, by four men, at 110s. per ton.—George's Roust Vein: Gripps' adit to drive north of Muir's cross-cut, by four men, at 90s. per fathom and 10s. per ton; a kindly lode, but not yielding sufficient ore to value.

Brown's Vein: Jeffrey's engine-shaft to sink below the 55, by six men, at 260s. per fathom and 10s. per ton. The 55 to drive north of shaft, by four men, at 115s. per fathom and 10s. per ton; a strong lode, yielding stones of ore. The stope in the back of this level, north of Gibson's winze, by four men, at 55s. per fm. and 10s. per ton; lode worth 20 cwts. per fathom. The winze below the 55, south of shaft, by four men, at 120s. per fathom and 20s. per ton; lode worth 4 tons per fathom. No. 1 stope in the back of said level south of shaft, by four men, at 80s. per fathom and 10s. per ton; lode worth 3 tons per fathom. No. 2 stope, south of ditto, by four men, at 60s. per fathom and 10s. per ton; lode worth 30 cwts. per fathom. No. 3 stope, south of ditto, by four men, at 60s. per fathom and 20s. per ton; lode worth 20 cwts. per fathom. The pitch in the bottom of the 30 south, by two men, at 110s. per ton. The pitch in the bottom of the 10 north, by two men, at 110s per fathom. The pitch in the said level, north of the above, by two men, at 110s. per ton. The winze below Gripp's, south on new run of ore, by four men, at 100s per fathom and 10s per ton; lode worth 22 cwts. per fm. The pitch in the back of the said level south of shaft, by four men, at 110s. per ton.—Raik Vein, Jeffrey's Cross-Cut: The pitch in the back of Gripps' adit, north of cross-cut, by three men, at 110s. per ton. The pitch in said level, north of the above, by four men, at 110s per ton.

Reid's Shaft: The drift above the 10, north of No. 1 winze, by four men, at 80s. per fathom and 7s. per ton, worth 20 cwts. per fathom. Stope in back of the 10, north of No. 2 winze, by four men, at 25s. per fathom and 10s. per ton, lode worth 30 cwts per fathom. Stope in back of the 10, south of No. 2 winze, by four men, at 7s. per ton, lode worth 7 tons per fathom. The 20 to drive south of Brown's winze, by six men, at 80s. per fathom and 7s per ton, lode worth 2¼ tons per fm Gripps' adit, south of Reid's shaft, under old Raik mine, by four men, at 70s. per fathom and 10s. per ton—a kindly lode, yielding stones of solid ore. Stope in back of the 6, north of trial surface shaft, by two men, at 10s. per fathom and 10s. per ton, lode worth 7 cwts. lead ore per fathom. Watson's shaft from surface, now down 48 fms. 3 ft 6 in., to sink to old Raik Mine, by six men, at 320s. per fathom.—Jeffrey's Vein, Reid's Shaft: Gripps' adit north west, by four men, at 100s p r fathom and 10s. per ton—a strong lode, but not to value. No. 1 stope in back of this level north west, by four men, at 55s. per fathom and 20s. per ton, worth 18 cwts. per fathom. No. 2 stope, by four men, at 20s. per fathom and 20s. per ton, lode worth 3 tons per fathom.

Mill vein pitch in back of Gripp's adit, south of Marr's shaft, by two men at 100s per ton. Carse's vein pitch in bottom of Gripp's level, south of Moss shaft, by two men, at 110s. per ton.—Glenea Vein: Trial adit to drive east on vein, by two men, at 30s. per fathom and 10s. per ton. Lead ore broken but not dressed up to Saturday last 155½ tons; lead ore dressed in bins and smelting house 318¼ tons. Pig lead at mines and at railway station 3967 pigs, weighing about 198 tons 7 cwts. We are getting on well with the 200 yards of additional flues to smelting works, and hope to have some completed by the end of the present working month. We shall then have a flue 700 yards in length, and a stack 60 ft. high above the mountain, which compared with the old state of things will be a very great improvement, and must lead to a saving in pig-lead, which calculated over a period will be no small profit to the company. The 360 tons of pig-lead sold last month are being delivered to the order of the purchaser.

MELLANEAR.—John Gilbert, Sept. 18: The 40, west of No. 2 rise, west of Gundry's shaft, was driven last month 4 fms 4 ft.; the lode is 5 ft. wide, and worth fully 4 tons of copper ore per fathom. The 90, west of Gundry's shaft, was driven 4 fms.; the lode is 5 ft. wide, and producing good stones of copper, lead, and blende, and is still letting out a large quantity of water. The winze in the bottom of the 70, west of Gundry's shaft, was sunk 1 fm. 3 ft 6 in.; the lode is 5 ft. wide, and worth 2 tons of ore per fathom. The 80, west of Gundry's shaft, was driven 3 fms. 5 ft 6 in.; the lode is 5 ft. wide, and worth 1½ ton of ore per fathom; the ground is a little better for driving, and the lode appears to be undergoing a favourable change. The rise in the back of the 40, west of No. 1 rise, has been put up 2 fms. 1 ft.; the lode is 2 feet wide, and worth 2 tons of ore per fathom. The 70, west of Gundry's shaft, was driven 7 fms. 3 ft.; the lode is 4½ ft. wide, and worth 3 tons of ore per fathom. The 60, west of Gundry's shaft, was driven 4 fms. 2 ft. 6 in.; the lode is 5 ft. wide, and worth 4 tons of ore per fathom. The winze in the bottom of the 60, west of Gundry's shaft, was sunk 1 fm. 2 ft. 6 in.; the lode is 4 ft. wide, and worth 3 tons of ore per fathom. The 50, west of Gundry's shaft, was driven 4 fms. 2 ft. 9 in.; the lode is 4 ft. wide, and worth 2½ tons of ore per fathom. The rise in the back of the 60, west of Gundry's shaft, is up 12 fms. 3 ft. 6 in., and the men have commenced to drive a 50 fm. level east from the top of the rise in a lode 4 ft. wide, and worth 3 tons of ore per fathom. We calculate to communicate this level with the 50, west of Gundry's, by the end of this week. The 100, east of Gundry's shaft, was driven 4 fms 4 ft 6 in; the lode is 5 ft. wide, and worth 1 ton of ore per fathom. We are expecting an improvement in this level, as it is just getting under some good ore ground that we have in the level above. The 30 cross-cut, south of Gundry's shaft, was driven 9¼ fms.; the ground is a little harder, and more mineralised, and we expect to cut the lode some time next week. The 100, west of the skip shaft, was driven 3¼ fms.; the lode is 2 ft. wide, producing some good stones of ore. The men have also this month enlarged the plat at this level. The lode in the 100, west of Gundry's shaft, is 4 ft. wide, producing occasional stones of good ore. We also set nine pitches to 28 men, at an average tribute of 8s. 3d. in 1*l.* We sampled yesterday (computed) 340 tons of copper ore.

MINERAL CORPORATION OF GREAT BRITAIN (HAFNA MINE).—W. Bennetts, Sept. 18: The lode in No. 1 adit is 4 ft. wide, and worth 1½ ton of lead to the fathom; this good course of lead speaks well for High Hafna Mine. The stope in the back of No. 1 adit is worth 25 cwts of lead to the fathom. We have communicated the rise in the No. 3 adit with the No. 2 adit level, which has well ventilated this part of the mine, and opened up a good piece of stoping ground. The men in No. 4 adit are making fair progress driving the cross-cut.

MONYDD GORDDU.—James G Green, Sept. 18: We have not been able to clear the 34 cross-cut yet, but I hope to resume the driving the beginding of next week. The 24 west is in a great lode, composed of quartz and barytes, containing occasional stones of ore. The intermediate level continues in a very rich lode. I shall have this clear of stuff on Saturday to commence stoping. No other change calling for remark. All our machinery is working admirably, and very good progress is being made in dressing.

MORFA DU.—T. Mitchell, Sept. 18: The lode in the bottom end at present is rather disordered, being split into branches. These branches are solid, and rich in bluestone; we find, however, another oblique joint coming into the forebreast, which we hope will improve the lode again. In clearing out the old level from the bottom of the winze recently cleaned up we find some rich bluestone ore standing in the back and bottom of the level. We have put on two or three extra hands in order to open up this ground as speedily as possible.

NEW SOUTH MERLLYN.—R. Rowlands, Sept. 19: The new sump is going down well, and we are in splendid ground for the production of lead ore.

PARYS MOUNTAIN.—T. Mitchell, Sept. 18: We have more small branches coming into the 90 south, containing a mixture of sulphur and copper ore, all of which are yielding a little saving work. The ground continues to present a kindly appearance, and we do not despair of meeting with something good before long.

PATELEY BRIDGE.—C. Williams, Sept. 19: The Rake vein, in the 30 east, is strong and masterly, worth 8 tons of lead ore per fathom, and likely for improving. The vein in the stope in the back over this level is 5 ft. wide, and worth 2 tons of lead ore per fathom. The vein in No. 2 stope, in back of ditto, is worth 1 ton of lead ore per fathom. The tribute pitch in the 20 east, on Rake vein, is worth 15 cwts. of lead ore per fathom. The tribute pitch in the 20 east, on Rake vein, is worth 15 cwts. of lead ore per fathom. The tribute pitch in Fielding vein, in the 20 north west, is worth 18 cwts of lead ore per fathom. The tribute pitch in string, in the 20 west, is worth 15 cwts. of lead ore per fathom. The Rake vein, in the 20 east, is 6 ft. wide, and producing good branches of lead ore. The Lumb vein, in the 20 west, is worth 10 cwts. of lead ore per fathom.—Primgap: The vein in this level is 6 ft. wide, and producing saving work for crushing. Smelting lead ore is being carried on regularly. We have 20 tons of pig lead for sale.

PENNANT.—Sept 19: There is very little change to notice in the driving of the 113 west, but good progress is being made in its extension. The 80 west is looking well—a fine compact lode, which has yielded since my last splendid lead ore, accompanied by carbonate of barytes, and the lode seems to be improving daily. We have laid down a tramroad in this level for the transit of stuff to the shaft. The stopes and dressing operations continue as for some time past.

PENHALLS.—S. Bennetts, P. Vian, Sept. 14: The 70 east end is producing a small quantity of tinstuff only, the lode being small. The west end, on the same section of the lode, is worth 12*l.* per fathom. The 60 east end is not so productive as last reported. The 55 east end, on another part and section of the lode, is worth 18*l.* per fathom. The 48 west is worth 7*l.* per fathom. The other points of operation remain without much change.

PICTON.—John Woolcock, Sept. 17: Since my last report we have started our engine, and I am pleased to state that it works remarkably well. We expect to finish the erection of crusher this week, and then we shall have some spare hands to complete washing-floors. We have also got through the old ladder way, which has been a very tedious job, and it will take two or three weeks yet to finish timbering and to replace the old ladders. The men can, however, now get down to the 126 yard level. On Monday four men started to raise ore, and I am pleased to see to-day that they are breaking good leadstuff for the dressing-floors. When the ladder road is perfectly secure I shall put on other four men, so that our returns will be regularly increasing, but the men in the driving must be allowed time to get a certain distance away from the shaft before we can begin stoping much ground. I find a small winze or sump in the bottom of the 126 yard level, which is now down to a depth of 14 yards, with good lead at the bottom. I purpose to sink this 6 yards more, then drive out about 4 yards to intersect the main lode, and from its appearance I expect a good deposit of lead ore, and in my next report I am confident I shall have the pleasure of informing you that your mine is still becoming more productive and valuable. I am much pleased after my inspection to-day with the appearance of the various points of operation underground. I consider our progress both underground and at surface very satisfactory and encouraging, and after the crushers are put to work and our crushing floors completed I shall be able to make you regular returns of merchantable ore for sale.

PRINCE OF WALES.—J. Andrews, Sept. 18: During the past week the tributers working in the back of the 24 have broken some good silver ore, and at the present time the pitch is looking very encouraging.

ROMAN GRAVELS.—A. Waters, Sept. 19: This mine continues to open out in a very satisfactory way, the ends and stopes yielding ore in profitable quantities We hope to commence sinking the new engine shaft below the 110 shortly. We drove 5 fathoms in the 95 south last month, and hope to improve upon that rate this month. Our sampling to day shows 180 tons of lead ore and 30 tons of blende, for sale next week.

ROOKHOPE.—Thomas Davidson, Sept 19: Adit Level: The stoping west from old rise, in No. 12 on sectson, is only poor—value, 12 cwts. per fathom. The stoping east from the same rise looks rather better at the top part; value altogether, 10 cwts. per fathom. The stoping over the top of the rise, Nos. 12 and 13, where four additional men were put in, looks very well at present; value, 1 ton per fathom. The stoping east from new rise, in No. 11, on section, is very hard, and the vein lying very flat; value, 12 cwts. per fathom The stoping over the adit level roof, No. 12 on section, is valued at 10 cwts. per fathom—all east of Gin shaft.—Over the 42: The stoping east from old winze, No. 4 on section, and 4 fms. below the 25 sole, has been yielding good bouse work during the week, and looks fair for continuing; value, 16 cwts. per fathom. The stoping west from the same winze is not so good, but I am expecting this to improve; value, 8 cwts per fm. West from the same winze, No. 5 on section, in the position of 4 fms. limestone, the stoping continues very hard, but yielding nice bunches of ore; value, 12 cwts. per fathom—the above east of Low shaft. The rise in No. 7, east of Gin shaft, has not improved during the week—not sufficient ore to value.

SOUTH CAMBRIAN.—A Francis, Sept. 16: The men have made good progress in cutting open the deep adit level, and having reached rich blende ground we are now stoping down more of the roof and sides than we did before doing so—in fact, we are carrying 3 ft. of the lode, all good blende ore, and laying the railroad as we proceed. The deep adit part of the lode on the south wall, which we are carrying 5 ft. wide, is yielding rich blende ore, and opening out a very large quantity of profitable stoping ground; and, judging from appearances, the portion of the lode standing to the north of the level is even richer than the part carried. We are accumulating a large quantity of ore at surface, and with a compact and perfect dressing apparatus a great desideratum, but not yet obtained as far as slime dressing goes, but which I am convinced we shall be able to establish, and with boring machinery we shall in a few months open out a property second to none in regard to returns and profits in the Principality.

SOUTH CONDURROW.—William Rich, W. Williams, H. Abraham, Sept. 18: The rise in the back of the 93 east is worth 20*l.* per fathom. The rise in the back of the 50 west is worth 35*l.* per fathom. The lode in the 50 east is improving. There is no alteration to notice in other parts of the mine.

SOUTH DARKEN.—H. James, Sept. 19: The pitwork is now fixed at the 100, and the two lifts from the 90 to the 70 are made to work in one. We have also put 1½ in. rods in the shaft and the 60, the old ones being too weak for the additional weight. I expect to have the water in fork, so that the men can resume their work at the bottom by Monday. Since last reporting the 100 end west the lode has improved, now showing ribs of lead, with every indication for an early and greater improvement. The lode in the 90 winze continues to look well, and is worth 38*l.* per fathom. We shall commence to drive the 100 from this point next week. The 90 end is again being driven by the side of the lode, with ore still showing as we advance, and looking very encouraging. The stope in the high back is worth 36*l.* per fathom. No. 1 stope, in the back, east from winze, is worth 20*l.* per fathom. No. 2 stope west is worth 30*l.* per fathom. No. 1 stope, in the back of the 80, is worth 15*l.* per fathom. No. 2 stope is worth 6*l.* per fm. The 40 tons of silver lead ore sold on the 13th inst realised 608*l.*

SOUTH DE BRESBY MOUNTAIN.—William Bennetts, Thomas Bennetts, Sept. 18: No. 1 Adit: We have cut through No 2 lode, which is 24 ft. wide, and throughout the whole width we have broken some good lead work. This lode has the same underlie as the Gorse lode in D'Eresby Mountain Mine; it has also the shale on the hanging side of the lode, similar to that in the D'Eresby Mountain Mine. There is nothing new in either of the cross-cuts since last week's report. No. 1 lode, in No. 2 adit, has very much improved in the past week; the lode is 6 ft. wide, worth 1½ ton of lead per fathom. No lode has been taken down in the east end since last report.—[There have been a number of gentlemen at the mine to-day, and all of them expressed themselves well pleased with the appearance of the mine.]

SOUTH MOLTON CONSOLS.—J. Harris, J. Comer, Sept. 19: There is no particular change in the ground in the adit cross-cut since last reported on, except that we are seeing spots of copper ore and blende in the killas, which looks encouraging.

ST. PATRICK.—W. Francis, Sept. 18: Good progress is being made in driving the 180 yard cross-cut north. The cross-course is now composed almost entirely of clay, with firm wall sides. I am expecting important results daily. No change in the 60 yards north cross-cut.

TANKERVILLE.—A Waters, Sept 19: I have been underground all through to-day with one of the largest shareholders in the company, and have much pleasure in being able to state that our prospects are quite 100 per cent. better than on the day of the general meeting, some six weeks ago. We can see a course of lead ore along the bottom of the 206, east of Watson's shaft, worth from 2 to 5 tons per fathom, and there is every prospect of further improvement as we go forward to No. 2 winze coming from the 192. The 206 west is yielding three times more ore than we got from the corresponding ground in the 192, and we are not yet west far enough to catch the dip of the principal western bunch. I will send a detailed report next week. Our usual sampling takes place next week.

TAN-YR-ALLT.—John Davis, Sept. 19: The lode in the bottom has improved considerably since my report of the 7th, having widened out, and some very good ore coming up now about the top of the level; it is of exactly the same character as the lode in the stope, but not yet so good; now worth about 2 tons per fathom There is no doubt the lead in the stope is dipping down this way. The new lode in the 12 has improved in appearance, is now much wider, and has turned round nearly to an east and west bearing; there are spots of lead throughout, and I expect to get into paying ore shortly when we get away from the influence of the north and south lode, from which we are only now about 3 fms. east. I have no doubt that this new lode is the Penpompren lode, which has proved very rich for silver. We have crushed the picked ore dry (about 7 tons), which we are sampling to sell separate. There is about 5 tons of the dressed ore in bin, and we are still dressing.

TEESDALE.—John Slack, Sept. 4: North End, Holmes Levels: This forehead is still being driven with four men; it has still further improved, and contains more lead ore, and there is still the same body of ore setting up into the roof as we go along.—North End: This forehead still remains poor and hard, but we are now nearly through the temporary twitch.—North End Stope: This is being worked from the end, and is now close up to the Old Man; it has good lead ore in it the whole height from top to bottom—The Old Man: I find there are several middlings and other pinkings between the whim-shaft and our present workings which will well repay working over again. I would recommend these being worked by the surface hands when the weather prevents them dressing ore.

TEMPLE.—Sept. 18: No. 1 level driving west, by six men, presents a promising appearance; small spots of lead appear at intervals, indicating the near approach to a continuation of the deposit of ore found above. No. 2 level driving west, by six men, is fully as productive, if it does not somewhat exceed the estimate of the last report; in fact, this level has shown gradual improvement ever since lead first made its appearance in the lode. No. 3 level driving west, by six men, shows no material change since last report. The winze sinking by six men below No. 3 is progressing favourably. The wet weather has materially interfered with surface work, but considerable progress has been made by the engineers in erecting the machinery, as also by the masons with the buildings. Fourteen men are now engaged on the surface in addition to the engineer's staff.

TOLGUS CONSOLS.—W. C. Vivian, Sept. 19: Most favourable indications continue in driving the 40 cross-cut; water is issuing from the end, so that the lode is still before us.

TRELFIGH WOOD.—Wm. Goldsworthy, Sept. 19: The lode in the winze sinking below the 44 is very much improved, and is producing splendid stones of tin, and from samples of the stuff taken for the size of the same will produce from 2½ to 3 per cent.; a fine-looking lode, and from the large quantity of ground laying up our prospects are much better. No other change to notice this week.

TYN-Y FRON.—E. Jones, Sept. 18: Since last report we have continued driving the cross-cut north in the eastern level; we find the ground a little softer than it was, which is an indication that we are approaching a lode; about 4½ fms have been driven during the last month. We calculate it will take another fortnight to complete the distance suggested by Capt. Francis, where we expect to intersect the lode. We shall be glad to hear you have completed your arrangements with the lord of Cae Gynon, and to have your instructions to proceed with the tramroad, that we may commence dressing, as we have really no room to deposit any more ore at the mouth of our level.

WEST GODOLPHIN.—John Pope, Sept. 14: Setting Report: Caunter: The 80 driving north, by eight men, at 7*l.* 10s. per fathom; the lode is small. The ground is easier for driving, and letting out more water.—Wilson's: The 70 driving west by six men, at 6*l.* per fathom; the lode is 4 ft. wide, worth 8*l.* per fathom for tin and copper. There is more lode standing in the sides of the level. The 70, driving east, by six men, at 6*l.* per fathom; lode 4 ft. wide, worth 6*l.* per fathom for tin. There is more lode standing in the sides of the level. The 70, No. 1 stope in back west, by six men, at 6*l.* per fathom; lode 12 ft. wide, worth 17*l.* per fathom for tin. The 60, No. 1 stope in bottom west, by six men, at 5*l.* per fathom; the lode is 7 ft. wide, worth 10*l.* per fathom for tin. The 60, No. 2 stope in bottom west, by six men, at 4*l.* per fm.; the lode is 5 ft. wide, worth 8*l.* per fathom for tin. The 60, No. 3 stope in bottom west, by six men, at 4*l.* per fathom; the lode is 5 ft. wide, worth 9*l.* per fathom for tin. The 60, No. 4 stope in bottom west, by six men, at 4*l.* per fathom; the lode is 6 ft. wide, worth 7*l.* 10s per fathom for tin. The 60, No. 5 stope in bottom west, by six men, at 4*l.* per fathom; the lode is 5 ft. wide, worth 7*l.* 10s. per fathom for tin. The 60, No. 6 stope in bottom west, by six men, at 5*l.* per fathom; the lode is 7 ft. wide, worth 14*l.* per fathom for tin. The 60, No. 3 winze to sink west, by six men, at 6*l.* 10s. per fathom; to carry the winze 7 ft. long and 4 ft. wide; the whole width of the lode is about 10 ft. The 60, No. 1 stope in back west, by four men, at 3*l.* 10s. per fathom; the lode is 3 ft. wide, worth 6*l.* per fathom for tin. The 60, No. 1 stope in bottom east, by six men, at 4*l.* per fathom; the lode is 4 ft. wide, worth 6*l.* per fathom for tin. The 60, two stopes in bottom west, by twelve men, at 6*l.* per fathom; the lode is 15 ft. wide, worth 25*l.* per fathom for tin. I am hoping that we shall be able to cut Wilson's lode in the 80 in about four weeks if the ground continues as it is at present. Our machinery is working very well.

WEST ROSKEAR.—H. Stephens, W. Bennetts, Sept. 19: The lode in the 12 west of Lanyon's shaft, is large, and much the same for ore as last reported; the air being light, we have taken these men back, and resumed the sinking of Lanyon's shaft, the lode in which is 4 ft. wide, and very promising, opening tribute ground. There is no change to notice in the 24 west; we expect an improvement here shortly. The lift is dropped 9 fms. below the 24 fm. level, and we hope to drop another 9 ft. pump this week.

WEST VOR.—S. Harris, Sept. 19: The rise above the adit level against new shaft is up 2 fms.; the lode is about 2 ft. wide, producing rich mundic and a little tin. We are now sawing it for tinstuff. In the shaft sinking below surface we are now down 15 fms.; the lode here is about the same size as in the rise below, but not so mineralised; we have about 10 fms. now standing between the shaft and the rise; I calculate it will take about two and a-half months to effect a communication.

WEST TANKERVILLE.—A. Waters, Sept. 19: The 80, south of boundary shaft, is in a lode 6 ft. wide, worth at present ½ ton of lead ore per fathom. The three stopes in the back of this level are worth together 1½ ton per fathom. The rise and stope in the back of the 75 south are worth 1 ton per fathom. The stope in the bottom of the 63 south is worth 1 ton per fathom. We have to-day sold 20 tons of lead ore for 29*l.* 10s., and 12 tons of blende for 39*l.* 18s.; together, 245*l.* 8s.

WEST WHEAL TOLGUS. Sept. 18: Taylor's Shaft: The sinking last month was only 7 ft.; the ground is very hard, and with so much water it is troublesome and spare for sinking. The lode in the 145 end west is 5 ft. wide, yielding 2 tons of ore per fathom; we think the north part is close to the south, and getting so near to No. 3 winze it should be better. The lode in the 145 end, west of No. 2 cross-cut, is yielding 4 tons of ore per fathom; we calculate on communicating this end with No. 3 cross-cut this month. We have set a cross-cut to drive south in the 145, about 12 fms. west from shaft, for the purpose of proving the south part; we think there must be a part of the lode standing to the south. There is plenty of air, and we can draw all the stuff from this level very well, so there can be no better time for proving it than now. The stopes are yielding tolerably well in both the levels. In No. 3 winze the lode is large, and yielding 5 tons of ore per fathom; there is more white iron in it than we have seen in any other part of the mine: there is generally more ore when the lode yields plenty of iron, but it has not proved so in this case. The lode in the 135 end west is 2 ft. wide, looking kindly, with a little ore, and is letting out more water than it has done. Richard's shaft is without alteration, the killas is stiffish. We have put six men to drive the 65 instead of four heretofore, and discontinued the 75 end. We have a good waterfall, which will give us air enough to drive a great distance west, and if we can find anything good the other level or levels can soon be pushed on.

WHEAL CREBOR.—John Andrews, Sept. 17: The lode in No. 1 and 2 stopes in back of the 120 has fallen off in value during the past week, and is now worth about 5*l.* per fathom in each stope. This falling off I regard as temporary, as there is a good lode gone down in the bottom of the 108 for more than 20 fms. in length, consequently we may expect a change for the better very shortly. The lode in No. 3 stope in the back of the 120 is worth 7*l.* per fathom. All other points are without change.

WHEAL PEEVOR.—W. T. White, J Pryor, Sept. 18: It is with great satisfaction that we can still report so favourably of the mine. All the points in operation are maintaining their usual productiveness. The lode in the 80 is improving as we extend west; this end is now laying open a fine run of tin ground, the average produce of last week's stuff from this end being 1¼ cwt. of black tin to the ton of stuff. There is also a very large and productive lode in the 36 end west, and the 26, west of main rise, is also improving. From the 26 to the 80 will make an end of ground laid open going west of 80 fathoms in height. Out of the number of bargains we have on tutwork precisely two-thirds of them are discovering, consequently a great extent of ground is laid open monthly. Our present returns of tin are about 10 tons per week.

WHEAL UNY.—William Rich, M. Rogers, Sept. 17: The lode in the 172, west of Hind's, yields low quality tinstone. The 160 end, east of Goodinge's shaft, has a promising appearance, and carries a little tin. The 160 west is worth 10*l.* per fathom; a rise in the back of this level is worth 10*l.* per fathom. The 150 west is worth 6*l.* per fathom. The 150 east is worth 8*l.* per fathom. We have holed the winze below the 140 to the 150, which has given good ventilation to the stope in the back of the 150. The lode in the 140 east is in a poor bar of ground, but there is a good shoot of tin in the bottom of the 140 and ahead of the end below, which we hope to soon intersect in the 140 fm level.

YNYS.—P. Williams, Sept. 19: The ore in the shaft continues to improve as we go down; we have got a few feet in the solid at the north end below the old men's stone, and the course of ore now continues the whole way across the bottom of the shaft, and is even better as we go down, especially in the north end (as above), which proves that our anticipations arrived at from the appearance of the old men's workings—that the ore is dipping north—are likely to be correct.

THE VAN MINES—MONTHLY REPORT.

Sept. 18.—As under I beg to hand you my monthly report and setting list. The 120 is driven 10 fms. west of shaft; there are a few spots of ore to be seen in the bastard; when we have driven 2 fms. more we shall cross north to prove the value of the lode; set to six men, at 100s. per fathom. The 105 west is driving upon a splendid lode, which is worth for the width carried 8 tons per cubic fathom, and a rich lode left standing in the hanging of the level; set to six men, at 200s. per fathom. The driving upon the branch from the 35 fm. level winze in the back of this level is suspended, and the men are set to take down the lode in the side and roof of the driving, which is worth 50 cwts. of lead ore per cubic fathom; set to six men, at 100s. per fathom. In the 105 east the lode contains very strong blende and a few spots of lead, but of the latter hardly sufficient to value; set to four men, at 150s. per fathom. The 90 west is suspended for the next two months, and the men are set to open out the lode to full width behind the present end, and put in stulls ready for stoping when required; the lode in this section is worth 100*l.* per cubic fathom; set to six men, at 6 s. per fathom. The winze sinking below this level is down 3 fms. in a lode worth 6 tons of lead ore per cubic fathom; in a couple of fathoms more this winze will come upon the main leader; set to nine men, at 280s per fathom. The stripping of the lode to full width in the side of the 90, at a point 85 fms. west of shaft, is set to eight men, at 85s. per fathom. The same at a point 78 fms. west of shaft is set to eight men, at 80s. per fathom. The lode at these two points is worth 32 cwts. of lead ore per cubic fathom. The stopes in the back of the 90, east and west of shaft, are on the average 24 ft. wide, worth 2½ tons of lead ore per cubic fathom, and are set for the ensuing two months as follows:—The 60 west to eight men, at 100s. per fathom. The 50 west to six men at 95s per fathom. The 40 west to six men, at 50s. per fathom. The 30 west to eight men, at 45s. per fm. The 10 west to eight men, at 45s. per fathom. The 10 east to eight men, at 47s 6d. per fathom. The 20 east to eight men, at 47s. 6d per fathom. The 30 east to six men, at 40s. per fathom. The 40 east to six men, at 60s. per fathom. The 90 east is for the present suspended, and the men are set to rise in the back of the level for the purpose of ventilating; set to four men, at 70s. per fathom. The 75 west is also suspended, and the men are set to rise in the back of the level, against the winze now sinking at present end of the 60, which is down 6 fms., but in consequence of the quickness of the water is suspended; the rise is set to six men, at 80s. per fathom. The stopes in the back of the 75, east and west of shaft, are on the average 15 ft. wide, worth 28 cwts. of lead ore per cubic fathom, and are set as follows:—The 130 west to eight men, at 65s per fathom. The 100 west to six men, at 45s per fathom. The 90 west to eight men, at 52s. 6d. per fathom. The 80 west to eight men, at 55s. per fathom. The 60 west to eight men, at 55s per fathom. The 50 west to eight men, at 57s. 6d. per fathom. The 40 west to eight men, at 50s. per fathom. The 30 west to eight men, at 47s. 6d. per fathom. The 20 east to six men, at 45s. per fathom. The 50 east to six men, at 60s. per fathom. The 60, east of shaft, is for the present suspended, and the men put to sink to meet the rise from the 75; set to four men, at 80s. per fathom. The 60 permanent levels are set to four men in each—the eastern at 95s., and the western end at 85s. per fathom. The stopes in the back of the 60, east and west of shaft, are on the average 11 ft. wide, and are worth 23 cwts. of lead ore per cubic fathom; set as follows:—The 115 west to eight men, at 65s per fathom. The 100 west to six men, at 50s. per fathom. The 72 west to eight men, at 52s. 6d. per fathom. The 64 west to eight men, at 60s. per fathom. The 54 west to eight men, at 60s. per fathom. The 48 west to four men, at 60s. per fathom. The 22 west to eight men, at 60s per fathom. The 16 west to eight men, at 65s. per fathom. The 8 east to eight men, at 65s. per fathom. The two stopes in the back of the 30, east of shaft, are set to eight men each, at 80s. and 60s. per cubic fathom respectively. The lode in these stopes will average 3 ft. wide, worth 1 ton of lead ore per cubic fathom.—Surface: All surface work is going on regularly. Machinery in good order. Our four-weekly sale takes place to-morrow upon 400 tons of lead and 150 tons of blende.—WM. WILLIAMS.

PICTON MINING COMPANY.—A large party met on Penyball Mountain to witness the ceremony of christening a new engine which has been erected by the Picton Mining Company, on the sett now held and worked by them, and which was formerly known as Coetia Ball Mine. The engine, which was supplied and erected by Messrs. Ratcliffe and Sons, of Hawarden, is very compact and neat, and will be used for winding purposes and also for crushing, apparatus being specially attached to it with that object. The engine is a horizontal one, with 14 in. cylinder, 2 ft. 6 in. stroke, and 8 ft. drum, and is of 20 horse-power. The proceedings at the mine were commenced by a selection of music being played by the Holywell Brass Band, and afterwards the engine was set in motion by Capt. Woolcock, and on the fly-wheel making its first revolution Mrs. Taylor (wife of the chairman of the directors) performed the christening by cracking a bottle of port wine on the wheel, and naming the engine Mary Anne, amidst the applause of the assembled spectators. The engine was fully set to work, and was found to answer perfectly. The party then removed from the engine platform to the pit head and watched with considerable interest the process of winding. Three kibbles of rich lead ore were brought to the surface, and each of the party securing a nut of the glistening treasure, to carry away in remembrance of the first lead wound by Mary Anne. The spirit and enterprise shown by the company in working the mine deserve the highest commendation, and it is to be hoped that their efforts will meet with that reward which is manifestly their due. Whilst the christening ceremony and the winding were going on, the miners of the locality expressed their interest in the proceedings by firing off charges of dynamite. During the afternoon a capital cold collation was served by Mr. Denton, of the Bell and Antelope Inn, in a tent erected upon the mine property. The chair was taken by Mr. R. R Taylor (Holly Bank, Walsden), chairman of the directors; and the vice-chair by Mr. Thos. Horsfall (Walsden), the vice chairman of the company. There were also present—Mrs. Taylor, Mrs. Horsfall, Mr. Ormerod Taylor, Mr. and Mrs. S. Stringer (Manchester), Mr. Winterbotham (Oldham), Mr. Walmsley (Llansantffraid), Mr. A. J. Watkins (Manchester), Mr. Law, Capt. and Mrs. Woolcock, Mr. Ratcliffe, (Hawarden), Mr. E. J. Davies, Mr. John Roberts, Mr. W. F. Morris, Mr. J. J. Evans, Mr. Peters, Mr. Wm. Stephenson, Mr. Peter Williams, Mr. McNamara, Mr. John Bowden (Birmingham), &c.

ARSENIC.—A parcel of arsenic, about 10 tons in weight, was sold at South Wheal Crofty on Saturday, when the private buyer offered 4*l.* 4s. 6d. per ton; the Cornwall Arsenic Company, 4*l.* 7s. 9d.; and the English Arsenic Company, 5*l.* 0s. 9d.; which is about 15s. per ton advance on previous prices.

WEST BASSET AND THE BORING MACHINE.—We are informed that a preliminary agreement has been entered into between the West Basset committee and Messrs. Henderson, of Truro, agents for the Hathorn Air Compressor and Eclipse Drill, exhibited at the recent meeting of the Royal Cornwall Polytechnic Society, by which the latter have contracted to drive two important levels, the 160 west of Grenville's, or any other point, at the same price that would be paid for hand labour. It is stipulated that the levels shall be driven at least double the rate of speed that miners could accomplish, and the adventurers to have the option of taking the plant off Messrs. Henderson's hands (who lay down the whole at their sole expense) on the completion of their contract. This will enable the West Basset agents to lay open a valuable section of tin ground in about half the time that it could be accomplished in the ordinary way.

WHEAL JANE.—The stone-breaker has been set to work, and is doing duty that much surprises the spallers, who have had this work hitherto to perform.

MINING NOTES.—At South Condurrow the lode in the 30 fm. level east is improving; in the back of the 50 west there is a capital lode in the rise, worth 30*l.* per fm. Hingston Down Consols is improving; in the stope in back of the 173 east the lode is worth 40*l.* per fm.; two or three other points also show an improvement. At South Tolcarne the lode in the 24 end is looking promising, and letting out more water. At West Seton they are now driving a cross-cut from the 140, in the expectation of intersecting the counter or new north copper lode, which was seen some years

since at a shallower level west of the present workings. At Wheal Grenville four pitches have been set to ten men, average tribute 12s. in 1l., to be paid at the rate of 3l. per ton for tin.—*West Briton.*

*** With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Original Correspondence: the Coal Production of the United Kingdom; the Trades Union Congress; the Guibal Fan; London Coal Supply (W. J. Thompson); Raising Water from Mines (R. Dunn); Boring Machines (R. Schram); Rock-drilling Machinery (F. Beaumont); Dynamite; Treatment of Copper and Silver Ores (A. Drouin); Mining News from Utah (W. Bredemeyer); Eclipse Gold Mining and Quartz Crushing Company (R. M. Potts); Richmond Consolidated Mining Company; Flagstoff Mining Company; Colorado United Mining Company (G. M. Henty); the English Lead Trade (J. Owen); Minerals and Metals—Miners, Smelters, Merchants, and Carriers (R. Tredinnick); Pateley Bridge Lead Mines and Smelting Company; Profitable Treatment of Mundic (H. Thomas); Lead Mining in Flintshire, North Wales; Morfa Du Mine; the Llanrwst Lead Mine (R. Knapp); Pant-y-Mwyn Lead Mining Company (E. Carver); Ynys Mine (P. Williams); the Mineral Resources of Cornwall, and its Unwrought Mining Ground (C. Bawden); South De Eresby Lead Mine—Foreign Mining and Metallurgy—Registration of New Companies—Underground Hauling Engine (*illustrated*)—Aldred and Spielmann's Patent Tramway—Patent Matters—Meetings of Cwm Dwyfor, Wheal Grenville, and Mid-Devon Companies, &c.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, SEPT. 20, 1878.

IRON.	£ s. d.	£ s. d.
Pig, GMB, f.o.b., Clyde..	2 7 4-	—
,, Scotch, all No. 1 ...	2 8 6-	3 10 0
Bars, Welsh, f.o.b. Wales	5 2 6-	5 5 0
,, ,, in London.	5 15 0-	—
,, Stafford., ,, .	6 15 0-	7 10 0
,, in Tyne or Tees ...	5 5 0-	5 10 0
,, Swedish, London ..	9 0 0-	9 10 0
Rails, Welsh, at works..	4 15 0-	—
Sheets, Staff., in London	8 5 0-	—
Plates, ship., in London	6 15 0-	—
Hoops, Staff.	7 10 0-	—
Nail rods, Staff. in Lon.	6 2 6-	6 15 0
STEEL.		
English, spring	....13 10 0-	19 0 0
,, cast	30 0 0-	40 0 0
Swedish, keg....	14 0 0-	—
,, fag. ham.	15 0 0-	—
LEAD.		
English, pig, common .	15 17 6	16 0 0
,, ,, L.B.	16 5 0-	—
,, ,, W.B.	16 15 0-	—
,, sheet and bar..	17 0 0-	—
,, pipe	17 10 0-	—
,, red	19 0 0-	—
,, white	24 0 0-	26 0 0
,, patent shot ...	20 10 0-	—
Spanish	15 17 6-	—
NICKEL.		
Metal, per cwt	18 0 0-	20 0 0
Ore, 10 per cent. per ton.	24 0 0-	26 0 0
QUICKSILVER.		
Flasks of 75 lbs., ware..	6 17 6-	—
SPELTER.		
Silesian	17 15 0-	18 0 0
English, Swansea	18 0 0-	—
Sheet zinc	21 10 0-	22 10 0

TIN.	£ s. d.	£ s. d.
English, ingot, f.o.b...	62 0 0-	—
,, bars ,, ...	63 0 0-	—
,, refined.....	64 0 0-	—
Australian	57 0 0-	—
Banca	60 0 0-	(nom.)
Straits	57 0 0-	—
COPPER,		
Tough cake and ingot.	66 0 0-	67 0 0
Best selected	67 0 0-	68 0 0
Sheets and sheathing .	71 0 0-	—
Flat Bottoms	74 0 0-	—
Wallaroo	69 10 0-	—
Burra, or P.C.O.	68 10 0-	—
Other brands	64 10 0-	65 0 0
Chili bars, g.o.b.....	60 0 0-	60 5 0
PHOSPHOR BRONZE.		
Bearing metal	£112 0 0	
Other alloys	£120 0 0-	140 0 0
BRASS.		
Wire	7½d.-	8d.
Tubes.....	7⅛	— —
Sheets	8¼	- 8¾
Yel. met. sheath. & sheets.	6	- 7
Nails composition.....	8¼	- 9

TIN-PLATES.*	per box.	
Charcoal, 1st quality...	1 0 0-	1 2 0
,, 2nd quality ...	0 19 0-	1 0 0
Coke, 1st quality	0 16 0-	—
,, 2nd quality	0 14 6-	0 16 0
Black .....per ton	16 0 0-	16 10 0
Canada, Staff. or Gla., at Liverpool	11 10 0-	12 0 0
Black Taggers, 450 of 14 × 10	30 0 0-	—

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 6s. per box more than IC quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—We have just emerged from one of those eventful periods when people feel a certain amount of relief from perils and casualties, but have not quite regained sufficient presence of mind to note the importance of the change that has taken place; and perhaps it is as well that they do not as yet altogether realise the fact, for were they thoroughly conscious of it, after remaining in jeopardy so long, they might be carried away by an over sanguine temperament into greater risks than those from which they have escaped. It is, therefore, probably better that the more favourable position of affairs should gradually dawn upon them, and that the recovery of the markets should be slow and steady, rather than sudden and violent; for as our markets gain strength the pulse will naturally quicken, and then there will be less fear of a reaction. The first thing is to restore confidence, and that is not so very difficult a matter, but it may take a little time to do it, even though alarms and apprehensions of danger from interruptions have ceased and better order prevails; but rest and quietude are wonderful restoratives, and may be safely left to do their work in the most approved and substantial manner. But people may ask—What is there to inspire confidence? On the other hand, what is there to shake confidence.

If we look back it is clear what has shaken confidence; but it is now time that these bad impressions gave way to good ones. Difficulties and troubles have been overcome, and there are grounds for congratulation and encouragement for the future. There is less risk now than formerly existed. It is true everything has not yet settled into its proper groove, but immense progress has been made, and every day is likely to add to its amendment. In some parts of the world great misery and privation have still to be endured, but what is its extent in comparison with the welfare of the remainder? Independent of the good harvest in England there has been an abundant one on the vast continent of America, and there is every prospect of cheap bread for a long time to come, which is the greatest blessing that could be bestowed upon the masses. But the good crops are not confined to England and America, for those of India are well spoken of, and the monsoons are said to be extremely favourable this season. Egypt has also come in for a bountiful share of Nature's gifts, for the Nile is stated to have risen unusually high. In Spain there is a heavy crop of fruit, and generally speaking there is little to complain of anywhere in respect to production of good supplies. The fears that were entertained of a commercial crisis are past now that the money market is easier, and the demand for money is on the decline. Protective measures were wisely taken in good time to prevent a drain of gold, and consequently there does not exist much danger from external causes, neither are our internal wants likely to be serious or urgent.

There is but a limited demand for money in the manufacturing districts Money will probably be flowing back from the agricultural districts as soon as the harvest operations are completed, which cannot be very long about now. There is almost a total cessation of speculation throughout the stock and produce markets, and as prices are extremely moderate, and in one or two instances exceptionally low for metals, there is every chance for legitimate trade to develope, and consumers would do well while the opportunity offers to make ample provision against increased wants. To omit to buy at the right time may prove as great a blunder as buying at the wrong time, and there is no excuse for neglect, especially after having received due intimation of the fit and proper time to buy. There can be no doubt that now is the proper time to buy; let others hesitate if they will and lose their chance of buying cheaply and below cost of production, but consumers should no longer delay their purchases, but make forward contracts wherever practicable A little additional demand would soon alter the whole appearance and position of our markets, for whenever a decided improvement sets in sellers will close their books at present rates, but hitherto they have been compelled to yield to the force of circumstances, but they do so now most reluctantly, and will not be backward in availing themselves of the first move for a rise. Shipping orders are increasing, and the Board of Trade Returns of exports may now begin to compare more favourably with those of last year. As far as England is concerned the position at the present moment is better than it has been for a considerable time past. The scare of war with Russia has passed away—the Cape war is over, or nearly so—India is recovering from the famine—our relations with foreign Governments appear to be friendly and satisfactory—our harvest is safely gathered in—money is obtainable at moderate rates—the prices of most commodities are reasonable, and metals are particularly cheap. Trade has been conducted cautiously, and remains in a fairly sound condition; its previous contraction is a guarantee of its future expansion, and the time is fast drawing near when those who have prudently secured stock will be the greatest gainers.

COPPER.—This metal claims priority over other metals by reason of its unprecedentedly low value, and those who are wanting it, or likely to do so, should buy without a moments hesitation; but some timid buyers, and there are always a few to be found, may say that stocks are rather big, and may not the price go a trifle lower. To such we would say lay your fears and timidity aside, and be bold for once, take and buy while you can, the chance of doing so at these prices may not be long, and perhaps never occur again in your lifetime. Chili bars at 60*l.* per ton are worth securing, and those consumers who miss buying will have cause to regret it. It may have been observed that for months past we condemned Chili bars as being too high, and some buyers may feel inclined to turn round and ask what is there now to recommend them more than then. The difference is this, that they have reached the limit which Roger's fixed, and we supported, or in other words their minimum value, and had they been reduced to 60*l.* as they ought to have been at that time, the demand would probably have been so much improved as to have prevented the lull which has since taken place, but it was an unfortunate piece of business to those who miscalculated their market and artificially maintained prices. Like all ill concocted movements, the result was unfavourable to the promoters, as well as to many others, for the demand being checked by the advance in price caused stocks to accumulate, and the consequent decline and depreciation of the entire market. It is extraordinary what a vast amount of mischief may sometimes be done by one or two operators with a few hundred tons. When the market is in a sensitive state the sale of a few 25 ton lots will bring the price down many pounds, and they make greater impression than what thousands of tons do at an ordinary time. Chili bars at 63*l.* was not worth buying, but at 60*l.* it is quite another thing, especially when circumstances have altered, and the trade is beginning to revive. At 65*l.* it was clear enough to disinterested parties a fall was inevitable, but at 60*l.* it is safe for consumers to lay in stock, and it cannot be replaced at the price, and they should buy before speculators and investors come forward, otherwise they will have to pay away the profit which might accrue to themselves. We urge consumers to buy now without delay just as much as we urged them before not to buy, the time has arrived to change tactics, and they must be quick about it.

If they followed our advice they have saved much by suspending purchases, and they will probably reap a double advantage if they buy quickly and freely at the present time. Since this day-week there are one or two fresh features which we will refer to. The stock of Chili produce on the 14th inst. in Liverpool and Swansea amounted to 22,891 tons, against 22,989 tons on the 30th ult., showing a decrease of 98 tons for the fortnight. The stock in Havre is 7472 tons, against 7607 tons, or a decrease of 135 tons. The imports and exports of all kinds of copper are extremely satisfactory, the imports to the end of August this year being 6397 tons less than last year. The exports, on the other hand, have increased 3058 tons. But the crowning feature of the whole is that the chief source of supply is declining, and the exports from Chili for the first half-year are less than for any of the previous four or five years. The charters for the first half of this month were posted up on Tuesday last, and consisted of 950 tons bars and ingots, 650 tons ores and regulus for England, and 300 tons bars for the Continent—in all 1900 tons, which are moderate, and much below what may be expected, as 4000 to 5000 tons were talked of as not improbable. The present announcement of 1900 tons only is, therefore, an agreeable surprise to holders. The Indian merchants have shown a great deal more disposition to execute orders for manufactured, and a fair number of orders have been put in hand. Low prices will doubtless stimulate the demand, and as the season advances an increasing business is fully anticipated. Buyers need not trouble themselves just now about the late Mr. Edwards's stock. If 80*l.* per ton barely offered sufficient inducement to part with a very small proportion of it, there will certainly be less temptation to sell an ounce at 60*l.* It appears to be left in very able hands, and will, no doubt, be judiciously managed without sacrificing the interests of its owners or injuriously affecting the market. The average price of ore at the Swansea sale on the 17th inst. was 9s. 5¼d. per unit of produce

IRON.—Circulars were received last Saturday in London from the makers of first-class Staffordshire iron announcing that they had made a reduction of 20s. per ton in the list prices, bringing the quotation for marked bars down from 8*l.* 10s. to 7*l.* 10s. at the works, and a similar decline upon all other kinds, but Messrs. Cookly and Co. having a short time ago (on July 18 last) lowered their price 20s. per ton upon sheets, will make no further reduction in this particular description of iron. The alteration in prices came rather unexpectedly upon the London houses, for it seldom occurs that any fixed change takes place in Staffordshire iron between quarterly meetings, and whatever might have been anticipated then, it certainly was not generally looked for now; but although it may be found suitable as a rule to decide the price from one Quarter-day to another, yet there will sometimes arise special occasions when it is undesirable to strictly adhere to that resolution, and where a departure from established custom is perfectly justifiable. All trade arrangements are, of course, entered into for the convenience of the majority, otherwise the trade would be better without them, therefore all such agreements ought to be subject to amendment and modifications. At last Quarter-day very many buyers thought prices would have been lowered, and would only make their purchases with the reservation that should prices fall before delivery they were to have the benefit of it.

The difference in value between marked and unmarked iron was beginning to tell at that time upon first-class makes, and ironmasters would have done well then to have readjusted their rates, and not to have unnecessarily delayed submitting to an inevitable fall. However, it was overruled, but it appears to have since dawned upon the leaders that, instead of gaining by upholding quotations they were positively losing, and, like all sensible business men would do they resolved to make the reduction forthwith, without waiting to see what the return of another quarterly meeting would decide. Out of consideration for the opinion of others, prices no doubt have been maintained unduly long; but those who have so persistently upheld prices must now be thoroughly convinced of their error, and their departure from a standing rule is a proof of the urgency of the case. If firmness on the part of sellers was indispensable for the preservation of the market, it would have become manifest, but the steadiness of the last twelve months has proved unsuccessful in seeing an adequate demand, and has at last terminated in a drop all round of 20s. per ton. Sellers naturally try to obtain the highest possible prices, but the prudence of such a proceeding is questionable when excessive competition exists; and, considering the state of affairs last Quarter-day, there could be no reasonable excuse for further delay; however, seller have now had the satisfaction of giving a further vent to the market, and having failed to accomplish their object, are now fully aware that no alternative remained, and that a reduction must ensue or no business would be obtained.

Better late than never, and the trade accepts the reduction with thankfulness, but it would have been better still if it had come before. Our remarks for weeks and months past have been pressing upon sellers the importance of making a reduction in prices, and the reduction now published is a confirmation of the correctness of our views. A decline of 20s. per ton does not necessarily reduce the prices of other kinds to a corresponding extent, but it has the effect of turning prices in buyers' favour, and sellers of lower qualities are already prepared to make slight concessions, but where a reduction is most needed is in the commonest kinds of iron, such as Welsh and East Coast, and we trust the example of the Staffordshire ironmasters will be quickly followed by those works. A fall of 20s. per ton is a proper one in every sense of the word; this is no half-and-half sort of measure, it has a stout look and a dash of courage in it, as much as to say we intend to take the bull by the horns, and if 20s. off prices will not restore the demand the trade may be prepared for a further display of similar boldness. A violent evil requires a powerful remedy, and there is no intention to yield the iron business into hands of foreigners. A drop of 20s. will perhaps rather astonish some of the foreign works, and cause them to reflect as to whether it will be worth their while to continue the contest. The Staffordshire houses are evidently on the right tack now, they have taken the first step towards retrieving the trade, but if it be still found insufficient we hope they will not hesitate quite so long the next time about making a further reduction. The course they have adopted in the present instance appears sound and correct, and deserves to meet with success. Perhaps if a change in quotations had been made last Quarter-day ironmasters would have been inclined to experiment upon 10s. per ton only, which would have answered no good purpose, and unsettled the market, therefore the little additional time they have taken for reflection has afforded them an opportunity for gaining increased knowledge, and enabled them to take a more comprehensive view of things, and instead of 10s. per ton decline we have an allowance of no less than 30s. per ton.

There is hope for the trade when its leaders act with firm determination and boldness, and they may rest assured that cheap prices cannot fail to restore the demand. The disposition and intention of the South Staffordshire ironmasters are now prettly clearly brought out, and there can be little fear but what they will carry the day, and soon supply the trade with iron quite as cheaply as any consistent with quality that can be procured from Belgium or elsewhere. But it should not be left to the ironmasters of one district to fight the battle—all should unite in endeavouring to overcome the foreign competition, and meeting it in the most effectual way, for nothing is calculated to destroy it sooner than by reducing prices all round, so as to render it harmless. The Welsh houses may well learn a lesson from the Staffordshire ironmasters; the former reduce their quotations by stingy half crowns, whereas the latter make a liberal reduction of 20s. per ton. The bulk of the Belgian iron imported is common quality; and, therefore, particularly affects the Welsh and Middlesborough districts; and as contracts have already been reported for Belgian bars at 9s. per ton below those of Welsh, it is quite time that the Welshmen were up and stirring. If the Staffordshire ironmasters have sufficient control over their districts to enable them to reduce prices 20s., why cannot the Welsh exercise similar control over their own? But surely they can manage 10s. if 20s. is found impracticable. In every possible way the prices should be brought down to the level of the Belgian prices. What is it that prolongs and encourages the competition than that the Belgians carry off the orders from this market, and keep their works going with work that in an ordinary way could be executed in this country. How that work is performed we will not presume to say; if it is done badly or dishonestly it will certainly not succeed, and an explanation was given by a correspondent in last week's Journal which rather surprised us.

It appeared from what was stated that systematic robbery was practised—that one parcel of iron after another was invoiced with short weight, and there was no redress. Buyers will find out for themselves in a very short time whether they are treated honestly, but if they discover they are being defrauded in weight they will soon abandon the purchase of Belgian iron, but we should be sorry to prejudice the minds of buyers by such a statement. Because one maker may have recourse to dishonest practices all must not be included and condemned on that account. Although the weight is in nearly every case perfectly reliable from all our English works, yet at times an accident may occur, and there are some few sellers whom we should treat with suspicion, not only in regard to weight but quality also, but we are happy to say that such people have no standing in the trade, and therefore, do not affect its character. If buyers prefer to deal with such houses merely because they get a lower price from them they deserve to be punished, for they must know that some mean or dishonest advantage will be taken of them to make up the price. The lowest priced seller is not always the cheapest. There is some business which had better be left undone if it cannot be accomplished with respectable and reliable houses. Buyers are not altogether blameless; any pettifogging fellow who quotes a price is set up against the roughly established and reputable houses. This is manifestly an unfair comparison to make, and buyers would always find their interests best protected if they placed themselves in the hands of a respectable broker. But to return to our subject. Welsh iron, and all productions in England of a similar character, must be brought down to the price of Belgian, otherwise we shall continue to lose a very large proportion of our trade, and this the English works cannot afford to submit to. The present price ought not to be more than 8*l.* in London for Welsh bars, and that price would, doubtless, severely try some of the Belgian competitors.

This reduction in the price of Staffordshire iron has hardly had time yet to show what effect it will have on the various markets, though we cannot doubt of its success eventually; for, according to many returns that have lately been published, there are several buyers who were merely holding back their orders for a reduction in price, and with such a drop as 20s. per ton surely it must tempt many to enter into contracts. Certainly the delay in making a reduction may have been the cause of several buyers having had to return their orders unexecuted, and so the indentor, doubtless, has in many instances placed his order elsewhere; but let us hope now that this reduction will not only be the means of bringing back to our own works the orders that have been rejected and not been executed at other countries, but also that orders may pour in abundantly from every source, that sellers who have so much shown their wisdom in lowering their prices now may never have cause to regret their having done so. Although from Leeds it is reported that little alteration has taken place, employment at a few of the mills has made a turn in the right direction, for the works are now said to be able to keep going some few hours longer than they were a week or two ago. Quotations are stated as remaining without change, with the exception of those for pig iron, for which description prices are said to have become rather easier, the demand being very slack. At the Rotherham district business is reported as remaining dull and without change, with the exception of that in hoops, for which kind of iron it is said is moderately active. At several of the mills the men are stated as being able to obtain nearly full employment. The trade at Sheffield shows some considerable depression, and complaints are said to be very numerous on the part of sellers as to the few orders which they now have on their books.

The various mills are only giving out work to a few hands, and those only on short time. Great quietness is observable on the market at South Durham, especially in pig iron, the demand being but limited. No. 1 is quoted at 43s; No. 3, 39s. to 39s. 6d.; and No. 4 forge, 38s. 6d. Although sellers are quoting the above price for No. 3 it is said that they have some difficulty in getting buyers to purchase at that price. Speculation has almost altogether abated, no one caring to buy beyond his immediate requirements. The manufactured trade remains about the same; no improvement can be reported, and quotations show little alteration. Plate makers appear to be the only ones who have any fair orders on their books at or about 6*l.* 5s. per ton. Bars and angle iron are quoted at 5*l.* 10s., and rails at 5*l.* 7s. 6d. per ton. The Shropshire finished iron firms are said to decline making any reduction for the present, but it is doubtful whether they can hold out for any length of time. Welsh iron is dull of sale; rails are quoted 4*l.* 15s. from first hands, but second-hand lots have been sold much below this price. In Scotch pigs the market has shown no vitality, and prices continue to droop; mixed numbers are quoted 47s. 4d.

SHIPMENTS.

For the week ending Sept. 14, 1878	Tons	9,793
For the week ending Sept. 15, 1877		3,690
Increase		1,103
Total decrease for 1878		50,689
Imports of Middlesborough pig-iron into Grangemouth:—		
For the week ending Septi 15, 1877	Tons	5,440
For the week ending Sept. 14, 1878		4,593
Decrease		487
Total increase for 1878		6,268

FURNACES.

In blast Sept. 15, 1877	87
In blast Sept. 14, 1878	93

TIN.—A continuous decline in the value of a commodity has a most depressing effect upon some people, and they are evidently not proof against a reverse of fortune, but the strangest thing of all is when an article has reached about to its lowest safest price the greatest amount of despair prevails For instance, what was thought cheap at 100*l.* is despaired of at 57*l.*, and a holder can now be persuaded to sell at the latter when he has actually refused to sell at the former figure, but thus it is that holders go to extremes. Either the profit to be obtained is not enough to satisfy their avarice, or else they throw up their stock in disgust at any cost and sacrifice. The price of tin has now had a considerable fall, and holders may well pause before they take fresh action, and wait to see what effect will be produced upon supplies and upon the demand. A reduction in value to the extent that we have had in tin must ere long bring out some new feature, and as it has almost been found to interfere with the production in some parts it may also do the same in others, but, assuming that no decrease in total imports takes place, yet there is the question of consumption, which has received an additional impetus by these low rates, and may hereafter increase, and probably will do so to a very considerable extent. Holders have no occasion to be needlessly alarmed, for the market is not going to fall away to nothing, and this is a time when consumers should buy. The price is too low for consumers to allow themselves to run bare of stock or to omit replacing their stock. Their stocks should now be kept up, and not on any account allowed to diminish. Besides, for speculative purposes, the present price is not at all an unfavourable one to begin an operation upon, for there is a very fair chance of making money, and very little fear of losing much.

LEAD has declined 2s. 6d. per ton, and the market is still very quiet.

SPELTER.—In good request, especially hard, which has been freely sold.

QUICKSILVER has been reduced to 6*l.* 17s. 6d., and fair sales have been made thereat.

THE IRON TRADE.—(Griffiths's Weekly Report).—Friday evening. The Glasgow market has been flat, and prices have again receded. G.m.b. warrants close this evening 47s. 4½d. buyers, a fall of 9d per ton. We quote makers' No. 1 iron: Gartsherrie, 55s. 6d.; Coltness, 58s.; Calder, 56s 6d.; Langloan, 54s. 6d.; Summerlee, 53s.; Monkland, 49s., f.o.b. Glasgow; Glengarnock, 53s. 6d.; Eglington, 48s. 6d., f.o.b. Ardrossan; Shotts, 56s. 6d., f.o.b. Leith. The reduction declared last week in the price of marked Staffordshire bars has had the effect of bringing out some foreign indents held by the merchants here. We cannot, however, say that any rush of new orders has been sent down to the works, although the leading makers have all more orders than usual this week from this market, and Robert Heath and Son are so busy with Government and other requirements that their works were started on Monday morning. The Shelton Bar Company and Stainer and Company are both fairly off for orders. The orders on this market are principally for galvanizing sheet iron. The autumn trade in sheets for Russia and the ports on the Danube and Adriatic is flat, and it looks as though we should have a great falling off in this demand this year.

The price of sheet-iron remains unchanged. The trade in the raw material is quiet. Glasgow market is a little lower. At Middlesborough, on Tuesday, the market opened and closed weak, without registering much change in price. Stocks remain about the same in Connal's store here. There has been very little done this week in pig-iron, either on the West Coast, the Frodingham district, or Derbyshire. These markets are not expected to be active before Quarter-day. The market for tin plates continues in the same languid state. For common cokes prices are no better. The metals are without much change. Straits and Australian are quoted 57*l.* 5s Chili bars, 6 *l.* to 60*l.* 5s. spot, about the same as last week. Market a little firmer.

Messrs. HARRINGTON, HORAN, AND CO. (Liverpool)—Arrivals here during the fortnight of West Coast, S.A., produce:—Illimani, from Valparaiso, 63 tons ore, 648 tons bars, 145 tons ingots: Pleiad, from Valparaiso, 13 tons regulus, 512 bars; Bertha, from Mollendo, 525 tons ore. At Swansea—Bessie Jose, from Tocopilla, 551 tons ores, 385 tons regulus Stocks of copper (Chilian and Bolivian) in first and second hands likely to be available, we estimate at—

	Ores.	Regulus.	Bars.	Ingots.	Barilla.
Liverpool	—	917	16 948	—	—
Swansea	1622	6907	2,098	—	—
Total.....	1622	7824	19,046	—	—

Representing about 22,891 tons fine copper, against 22,989 tons Aug. 30: 18,980 tons Sept. 15, 1877: 14,157 tons Sept. 15, 1876: 13,475 tons Sept. 15, 1875. Stock of Chili copper in Havre, 7472 tons fine, against 8148 tons Sept. 15, 1877; stock of Coro Coro barilla in Havre, 2894 tons, against 20 tons Sept. 15, 1877; stock of Chili copper afloat and chartered for to date, 11,600 tons fine, against 7400 tons Sept. 15, 1877: stock of foreign copper in London, chiefly Australian, 6300 tons fine, against 4300 tons Sept. 15, 1877.

The MINING SHARE MARKET has been rather more active since our last, and several mines have improved in price. TIN MINES have been firmer, and several transactions recorded, though the low prices ruling tempt buyers rather than sellers. From the Mineral Statistics published in the Journal last week it will be seen that the average price for tin ore paid to the miner in 1872 was 82*l.* 7s. per ton. In 1877 it had dropped to 40*l.*, and the average now is a little over 30*l.* per ton, showing a drop since tin mines were the rage and in the ascendant of nearly 60*l.* per ton. To mines returning 50 tons a month this makes a difference of over 3000*l.* a month, or 40,000*l.* a year. To many old mines the result has been ruin, to others heavy calls, and many young mines that would probably have done well at the old prices have been struggling on or held in abeyance to save costs and in the hope of a rise in tin, and if this does not soon come about many promising young concerns may be wound-up.

Carn Brea have been more enquired for this week, and leave off 35 to 40, with the call of 20*l.* paid. Dolcoath, 23 to 25; Tincroft, 6¾ to 7¼, call paid; Cook's Kitchen, ⅞ to 1⅛; East Pool, 8¾ to 9⅛; Penstruthal, 3s to 5s.; South Condurrow, 10⅛ to 11; South Frances has been in good request at 4⅜ to 5½; West Frances, 1¾ to 2. Killifreth, ⅜ to 1⅛; at the meeting a call of 4s. per share was made. The accounts showed a balance against the mine of 3510*l.* The agent reports he is full of hope that in six months time several promising points will prove successful. Wheal Grenville, 1⅛ to 2; at the meeting, particulars of which will be found in another column, a call of 5s per share was made. Wheal Kitty (St. Agnes), 1¾ to 1⅞ Wheal Peevor, 6¼ to 5⅜; Wheal Uny, 10s. to 15s.

COPPER MINES show no change. At the Cornish ticketing on Thursday the standard for ore declined 7s. The average price of the ore sold was 3*l.* 0s. 6d. per ton; the average produce 6⅜ per cent. Devon Great Consols, 2 to 2½; the sale here for the month (845 tons) realised only 1629*l.* 0s. 6d. The prospects at the 137 south are better. South Caradon, 50 to 60; the sale of 440 tons here realised 2223*l.* 1s. Marke Valley, ⅜ to ½; the sale here (345 tons) realised 968*l.* 15s. 6d. Parys Mountain, 4s. to 6s.; the indications at the 90 south lead the agents to hope for something good before long. Morfa Du are getting in demand at ⅜ to ½ (15s. paid); the assay of the so-called bluestone, but which, in fact, is nearly solid metal, is considered very favourable. There is a good demand for it, and, if the price is favourable, the mine may shortly prove a great success. Mellanear, 3⅜ to 4¼; East Caradon, ½ to ⅝; West Seton, 7 to 8; West Tolgus, 50 to 52½.

LEAD MINES though still the prominent features in the market are by no means active, and our quotations are merely nominal. Van, 17 to 18; the sale of lead ore for the month—400 tons—realised 4290*l.*; blende—150 tons—438*l.* 15s. East Van, 2½ to 3; the cross-cut has now been driven 73 ft., and nothing met with, and there are only 3 or 4 ft, more to drive to thoroughly cross the lode. Roman Gravels, 7¼ to 7¾; no change has taken place in the mine. The agent hopes to commence sinking the engine-shaft below the 110 shortly. The sampling this week is 180 tons of lead and 30 tons of blende. Tankervilles have been flat at 2½ to 3, but leave off in demand at 3 to 3½. The agent considers that the prospects of the mine are much better than they were at the general meeting a few weeks ago, and there is a course of lead along the bottom of the 206 east of Watson's shaft, worth from 2 to 6 tons of lead ore per fa-

with every prospect of improvement. West Tankerville sold 20 tons of lead ore for 205*l.* 10s.; 12 tons of blende, 39*l.* 10s : total, 345*l.* 8s

South Darren, 1½ to 2⅝; the lode in the 100 end west has improved, and likely to be still better. The 90 winze is worth 38*l.* per fathom. The stopes are worth 36*l.*, 20*l.* 30*l.*, and 15*l.* per fathom. Glenroy, ⅝ to ¾. Pateley Bridge, 3¾ to 4¼; the Rake vein, in the 30 east, is still worth 8 tons of lead ore per fathom. There are 20 tons of pig-lead ready for sale. Bettys-y-Coed, 1⅛ to 1⅜; Grogwinion, 2½ to 3; Great Holway, 4½ to 5; Great Laxey, 17½ to 18½; Leadhills, 2½ to 3; Pandora, 15s. to 20s.; Rookhope Lead, 10s. to 15s. South Roman Gravels, ½ to ⅝; the winze on the sawpit lode has been sunk 2 fms. 5 ft., and the lode, which is 7 ft. wide, continues to yield good stones of lead and rich lumps of carbonate of barytes. D'Eresby Mountain, 75 to 85; the lode in No. 1 is improving. D'Eresby Consols, 10 to 11; Aberllyn, 10 to 11; Clementina, 1¼ to 1½; West Pateley Bridge, 1½ to 2.

West Chiverton 5 to 6; the accounts to be presented to the meeting on the mine show total costs for five months, to July 13, 879*l.* 13s. 9d.; sales of lead, 1129*l.* 13s. 3d.; blende, 187*5l.* 3s. 10d.; coals supplied to East Chiverton, 164*l.* 4s. 10d. Credit is then taken for blende unsold, and estimated at 454*6l.* 5s., thus showing a loss of only 107*7l.* 6s. 10d. The statement of liability and assets shows over draft at bankers, 7186*l.* 11s. 3d., and other liabilities, making up 11,441*l.* 4s. 8d. In the assets credit is taken for the above estimate of blende unsold (4546*l.* 5s.), and a balance shown of 82*l.* 13s. 2d. The costs are charged up to July 13, and the monthly costs are about 1700*l.* per month. Tyn-y-fron, 1⅜ to 1⅝; Caron, 2 to 2½; Hartington Moor, 1½ to 2; Mawston, 55 to 60; Red Rock, 2 to 2½; St. Harmon, 2½ to 3; South Cwmystwith, 2½ to 3; West Wye Valley, 2¼ to 2⅜; Wye Valley, 2 to 2½.

FOREIGN MINES.—Blue Tent, 2¾ to 3; Chontales, ½ to ¾; Don Pedro, 10s. to 12s. 6d.; Eberhardt and Aurora, 4⅜ to 4½; Flagstaff, ½ to ⅝; Frontino and Bolivia, 2⅝ to 2⅞; Javali, 7s. to 9s.; Cape Copper, 30 to 32; Colorado United, 3½ to 4. Santa Barbara, 1⅜ to 1½; the advices this month show a profit of 627*l.* 12s. for July. The produce of gold, 4066 oits., valued at 8s. 6d. per oit., amounts to 1728*l.* 18s.; working cost estimated at 1100*l.* 9s. No great change has taken place at the mines. Pitangui, par to ¼ prem.; Hultafall, 3 to 4; New Zealand Kapanga, 1½ to 1⅝; Last Chance, ¾ to 1; New Quebrada, 1½ to 1⅝; Panulcillo, ¾ to 1½; Port Phillip, 10s. to 12s. 6d.; Richmond, 9 to 9½; St. John del Rey, 280 to 290; South Aurora, ½ to ⅝.

The market for Mine Shares on the Stock Exchange has shown much more animation during the week, although the amount of business doing is still far from large. British mines have been receiving more attention; Tankervilles were temporarily in favour, but upon a few sales being effected they speedily receded to 2½, 3, at which they close. To-day South Condurrow has been dealt in at 11, and South Wheal Frances at 5¼ ex div. In connection with foreign there has probably been more business done to-day than for months past, and much greater confidence than usual is manifested in the future. New Zealand Kapanga were dealt in at 1½; Yorke Peninsula at 3s. 9d.; Linares at 3⅞ and 4; Rio Tinto 7 per cent. mortgage bonds at 14½; Colorado United at 3⅝ and 3¾; Eberhardt and Aurora at 4⅜, but they close much weaker; and Richmond at 9 1-16th and 9 3 16th with little disposition to sell, owing to the general feeling that the discovery below the No. 7 chamber is a very important one, not only for the value of the ore which it places within reach but because it proves the continuity of the mineral in depth.

In connection with the Transvaal an association—the Young Men's Farming Association—has been formed, with a capital of 100,000*l.*, which appears to have some attractions, but the prospectus is so carelessly drawn, and so ambiguous, that the publication of some more definite statement should be demanded before money is embarked in it. As the name of Sir Francis Knowles, Bart., F.R.S., appears amongst the trustees, whilst that of John Widdicombe, who may have been connected with the Cape Copper Mining Company, is on the executive committee, it may be assumed that the necessary explanation will soon be forthcoming. The capital is divided into 100*l.* co-operative shares, 50*l.* investors' shares, and 1*l.* investors' shares, but the number of each class is not fixed. Again, it is stated that "it is calculated that 2000*l.* should suffice for the acquirement of 6000 or 8000 acres, 2000 sheep, 50 cattle, and 20 horses, and yet leave sufficient for the first year." Now, the company only possess one 6000-acre farm—Eyssells drift—worth perhaps 500*l.*, leaving 1500*l.* of the 2000*l.* above mentioned for the sheep, cattle, horses, and first year's working capital, and there is nothing in the prospectus to show how the remaining 294,000 acres are to be secured, so that holders of 1*l.* worth of the company's shares might find that they participate in but one farm, or 600 acres, instead of 50 farms, or 300,000 acres. This is, no doubt, open to explanation, as it is stated that each 50*l.* share is to carry an 160-acre allotment, and each 1*l.* share a 5-acre allotment; but the character of the prospectus is so cloudy that subscribers would practically have no legal remedy, since the prospectus as it stands involves the obvious absurdity of promising to divide one 6000-acre farm into 100,000 plots of 5 acres each. With a prospectus offering proper guarantees, there is no reason why an enterprise of the kind should not succeed.

Concerning forthcoming projects a correspondent writes:—"A gigantic Californian hydraulic gold-washing enterprise is about to be introduced upon the London market. The gravel is said to yield an unusually high percentage of gold. Such results are said to be realised as to appear almost fabulous. The group of mines is declared to be the richest and most extensive gravel deposit in California, and probably in the known world. Some Californian capitalists, it is understood, will continue to act as joint directors. The concern is to be capitalised at an amount far exceeding that of any mine yet placed upon the Stock Exchange." It is to be hoped that British capitalists will appreciate the enterprise.

The animated discussion which for many weeks past has been going on in connection with Richmond matters has lost some of its interest through more than one of the writers having made it obvious that his leading object was to benefit himself by influencing the price of shares. Such gentlemen, especially when writing under a pseudonym, should avoid both inaccurate statements and those calculated to cause personal annoyance. In the Journal of Sept. 7 "Shareholder" is at fault in both these particulars. The inaccuracies were so evident, and "Shareholder's" object so transparent, that the offensive reference to Mr. Elliott was passed over last week as unworthy of notice, but as some of his friends think it preferable to place the correction on record it will suffice to refer to the report of the Richmond meeting, published in the *Mining Journal* of August 25, 1877, which shows that one shareholder in expressing regret at Mr. Elliott's decision to retire from the Chairmanship proposed "that the cordial thanks of this meeting be given to Mr John Elliott for his past eminent services to the Richmond Company, together with the sincere hope that he may be induced to withdraw his resignation." This proposition was at once seconded; and the report goes on to state that "several other shareholders joined in expressing regret at the determination of the Chairman, and in requesting him to withdraw his resignation"—and "after some further remarks of a similar character the resolution was put and carried unanimously amid loud cheers." The other portion of "Shareholder's" letter, being merely the expression of his own opinion, which differs widely from those of men who thoroughly understand the entire question, are really not worth refutation. That Mr. Bayliss should have sacrificed property as he is alleged to have done is regretable, but if he be satisfied with the bargain he has made—and he does not appear like a gentleman unable to look after his own interest—surely public attention need not be drawn to his actions, which can be no more instructive to the ordinary capitalist than the bulletins of the health of "the Claimant." If Mr. Bayliss have ceased to be a shareholder it is most unfair that his want of judgment in connecting himself with such a hopeless affair as the Richmond should be constantly thrown in his teeth.

St. John del Rey, 280 to 290; the produce for August was 35,000 oits., of the value of 13,562*l.*, and for the first division (eight days) of September 8250 oits., of the value of 3197*l.* All was (Sept. 16) going on well, but the duty of the stamps was short, from short supply of water. Don Pedro, ⅝ to ¾; the July produce from 2211 tons was 1758 oits., of the value of 747*l.*, and the total cost was 2112*l.* 10s. Captain Vivian (August 17) has every confidence that the produce will now increase. Santa Barbara, 1⅜ to 1½; the manager reports that during July 1131 tons of ore and 46 tons of refuse yielded 4066 oits., of the value of 1728*l.*, leaving an estimated profit of 627*l.* 12s. Pitangui, ½ to ¾; operations, which were suspended on August 8, were resumed on the 20th of the same month.

Richmond, 9 to 9½; the directors have announced that the coupons for the half-year's interest on the debentures falling due on Wednesday next will be paid on and after that date at the company's bankers—the Union Bank of London. The manager's report (Aug. 28) states that the improvement in the appearance of the ground in the 500 on the fissure referred to in the previous report has opened out well. A winze has been sunk 62 ft. on the dip of the deposit, and the last 37 ft. is sunk in very good ore, the present bottom being in yellow carbonate with a streak of black varying from 6 in. to 2 ft. wide. A winze sunk from bottom of No. 7 chamber, below the 400 level, 26 ft. in ore. The foot wall is pitching towards the new discovery in the 500. It is believed that there will be a connection in mineral between these two points, and from present appearances there is a large body of ore between the No. 7 chamber and the new discovery in the 500. A drift on a small seam of ledge matter holed at 15 ft. a cave with very fine ore standing, which seems likely to be part of the deposit in No. 10 chamber, 80 ft. distant. These points will be more readily understood by referring to the sketch accompanying the report in another column. The important feature of these details is that it proves that the riches of the mine are not confined to the shallower levels, but that the ore bodies met with in the 400 hold down and continue equally valuable as greater depth is attained. On the whole the future prospects of the mine never looked more encouraging.

The Emma Mine is still being successfully worked; Mr. Henry Sewell, writing from Salt Lake City, Sept. 4, says:—It is reported that they have struck a small vein of ore from six inches to three feet wide, assaying up in the hundreds. It will not be long before the Emma will produce as much ore as in early days. They are working sixteen men on eight-hour shifts in the lower levels. Mr. Scrimgeour is working from forty to fifty men on the old works, jigging the low-grade ore, and making it pay him very handsomely.

Eberhardt and Aurora, 4½ to 4⅝; a correspondent writes that some in the district think the suspension will be but temporary, while others see in it a long period of delay. It does not look reasonable he says that the company will suspend operations now for any great length of time as they have just reached a point where prospecting is practicable, and the chances of finding are favourable, as indicated by the upper workings of the ground in the immediate vicinity of where work has been stopped. In the North Aurora the company have about 60 miners taking out ore in the old chambers, and the prospects at that point continue to improve. The mill is running constantly, and in all probability will continue to do so till late in the fall.

Hultafall, 3½ to 4⅛; the agent writes that "he has tried the hauling machinery, which is all that can be desired. He is putting up the staging for the trams from the pit-head for the stone-breaker. A man of first-class experience has been sent out by to-day's steamer to take complete charge of the dressing department."

The Market for Hydraulic or Gold Washing shares is without alteration. The latest advices state that washing was not quite so lively throughout the State, owing to the water beginning to show signs of failing. The latest dates from You Bet state that the Birdseye Company were washing yet with favourable results. Upon the whole it is considered that the season has been a satisfactory one, though not quite so long as was anticipated from the winter rainfall. A telegram from Placerville states that this company has made another trial of their ore, having crushed a further 70 tons, which yielded at the rate of $13 per ton, thus confirming the previous returns.

Lead Mines have been slightly more active, but without much fresh business. Van, 17 to 19; the usual monthly report appears in another column. The mine is looking exceedingly well, and the bottom levels are opening up fine courses of ore. The sale on Thursday, 400 tons lead and 150 tons blende, realised 4728*l.* 15s. Grogwinion, 2½ to 3; prospects at this mine continue to improve, and the deep workings still open out rich ore ground. Wye Valley, 2 to 2½; all progressing well at this mine. West Wye Valley, 2½ to 2⅞; no fresh news this week.. Caron, 2 to 2½; the crushing of ore will commence in a few days. Underground prospects are still improving. Red Rock, 2 to 2½; a communication has now been effected at the 10 fm. level between the two shafts, and a large extent of valuable ground has been thereby laid open. Saint Harmon, 2½ to 3; steady progress is making here, and the prospects are considered satisfactory. Mawston, 55 to 60; very little doing worthy of report.

Pant-y-Mwyn shares are quoted at 5¼ to 5⅜; a further important discovery of lead has been made in the 15, below Day level, which is the deepest point yet reached. The last two sales for a fortnight amounted to 37 tons, and realised 519*l.*: 25 tons were sold as potters' lead, and fetched 15*l.* per ton. About 230 tons of ore are now in the bin and on the dressing-floors.

Mineral Corporation, 10 to 11; satisfactory progress is being made at the Hafna Mine, but it is observed that the speed is, of course, comparatively slow until there is working space for a larger number of men. The course of lead met with in No. 1 adit, and at present 4 ft. wide, worth 1½ ton per fathom, is considered to speak well for High Hafna Mine. The communication of No. 2 and No. 3 adits has given air and opened a good piece of stoping ground. Fair progress is being made with the cross-cut, and operations generally will shortly be much extended.

Pately Bridge, 4 to 4½; the Rake vein in the 30 east is worth 8 tons per fm.; other parts of the mine also looking well. West Pateley Bridge, 2 to 2½; the Craven Cross shaft has been cleared to the bottom. Other points are without change. Hartington, 1¾ to 2; nothing important doing.

Subjoined are the closing quotations:—

Assheton, ⅛ to ¼; Carn Brea, 35 to 40; Devon Great Consols, 2 to 2⅛; Dolcoath, 23 to 25; East Caradon, ⅛ to ⅜; East Van, 2⅛ to 3; Glenroy, ½ to ¾; Glyn, ½ to ¾; Great Laxey, 17 to 18; Hingston Down, ⅛ to ⅛; Leadhills, 2 to 2⅛; Marke Valley, ½ to ¾; Parys Mountain, 4s. to 6s.; Pateley Bridge, 3¾ to 4¼; Penstruthal, ⅛ to ¼; Roman Gravels, 7 to 7½; Rookhope, ½ to ⅝; Tankerville, 2½ to 3; Tincroft, 6¾ to 7; Van, 17 to 19; West Assheton, ½ to ¾; West Chiverton, 5½ to 6¼; West Pateley, 2 to 2½; Wheal Grenville, 2 to 2½; Almada and Tirito, 3-16 to 5-16; Birdseye Creek, ⅛ to ⅞; Blue Tent, 2¾ to 3; Cape Copper, 30 to 31; Cedar Creek, ⅛ to ¼; Chontales, ¼ to ⅜; Colorado United, 3¼ to 4; Don Pedro, 7-16 to 9-16; Eberhardt and Aurora, 4¼ to 4⅜; Exchequer, ¼ to ⅜; Flagstaff, ⅜ to ⅝; Frontino and Bolivia, 2⅝ to 2⅞; Hultafall, 3¼ to 4½; I X L, ⅛ to ¼; Javali, ⅜ to ½; Kapanga, 1½ to 1⅝; Last Chance, ¾ to 1; New Quebrada, 1⅝ to 1⅞; Oregon Pref., 1 to 1½; Pesterena, ⅛ to ¼; Port Phillip, 7-16 to 9 16; Richmond Consolidated, 9 to 9⅛; St. John del Rey, 280 to 290; San Pedro, ¼ to ¼; Sierra Buttes, 1⅜ to 1⅝; South Aurora, ⅛ to ¼; Tecoma, ⅛ to ⅜; United Mexican, 3⅛ to 4.

At the Swansea Ticketing, on Tuesday, 1403 tons of copper ore were sold, realising 5044*l.* 15s. 0d. The particulars of the sale were—Average standard for 9 per cent. produce, 73*l.* 15s. 2d.; average produce, 7 9 16; average price per ton, 3*l.* 11s. 10d.; quantity of fine copper, 106 tons 7½ cwts. The following are the particulars of the two last sales:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Aug. 27	1511	£78 4 0	9 13-16	£5 5 6	10s. 8½d.	£53 11 9
Sept. 17	1403	73 15 2	7 9-16	3 11 10	9 6	47 8 5

Compared with the last sale, the decline has been in the standard 4*l.* 8s. 10d., and in the price per ton of ore about 6s. 9d. The Spanish ore gave a produce of 6¼ per cent., and sold at 8s. 4¼d. per unit; Caveira, produce 5⅞ per unit 8s. 10⅜d.; Union, produce 8 5-16, per unit, 9s. 10¾d.; Berehaven, produce 9 11-16, per unit 11s. 2d. There will be no sale on Oct. 1.

At the Truro Ticketing, on Thursday, 2427 tons of copper ore were sold, realising 7372*l.* 16s. 6d. The particulars of the sale were—Average standard, 90*l.* 1s.; average produce, 6⅜; average price per ton, 3*l.* 0s. 6d.; quantity of fine copper, 156 tons. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Aug 22.	2409	£91 0 0	6¾	£3 0 6	9s. 6½d.	£47 14 0
Sept. 5.	1374	86 2 0	7¼	3 10 6	9 8½	48 12 6
„ 19.	2427	90 1 0	6⅞	3 0 6	9 5½	47 5 3

Compared with the last sale, the decline has been in the standard 7s., and in the price per ton of ore about 5d.

GREAT HOLWAY.—Important progress is being made with the new engine foundations at Roskell's shaft. This property is likely to attract considerable attention on the part of the investing public ere long. It is reasonable to expect splendid and lasting returns in the future.

TANKERVILLE.—As will be seen by the manager's report in another column, an important discovery of lead ore has been made at the bottom of the mine, and he had much pleasure in being able to state that the prospects are quite 100 per cent. better than at the annual general meeting held some six weeks ago. At the 206 east the lode is turning out 4, 5, and 6 tons of lead ore per fathom, and west 2 to 2½ tons per fathom, although this level is not yet driven west far enough to catch the principal course of ore gone down in the level above. The last month's sale of 100 tons will all be sent off this week, and another 100 tons sampled next week. A magnificent rock of lead has this (Friday afternoon) day been viewed at the company's London office from the new discovery, which can be seen there by any shareholder or others.

LEADHILLS.—We understand the directors, manager, and secretary have just returned from the mines, which in several points of operations are looking much better, as will be seen in the manager's report in this week's Journal. The sales of lead made this month amounts to about £5800. Some important discoveries of ores are expected in the several drivings now being vigorously developed.

PATELEY BRIDGE—GREAT DISCOVERY.—This great discovery, as will be seen from the manager's report, "still continues strong and masterly, worth 8 tons of lead ore per fathom, and likely to improve." Shareholders cannot attach too much importance to this point, as within a few fathoms of the present end this valuable ore body will be intersected by other well-known rich veins. "Gulfs" of ore are in this district invariably met with at these junctions. It is significant, too, that already in the level above (the 20) this celebrated Rake vein is 6 ft. wide, and producing good branches of lead ore. Smelting is being carried on regularly; there are 20 tons of pig-lead ready for sale.

WEST PATELEY.—This week's report announces the important fact that the Craven Cross shaft has been cleared and secured to the bottom (46 fathoms below surface). This has been a long and costly, although necessary, work; but now that it is completed the valuable discoveries made in clearing the shaft will more than compensate. Other points are without any material change. Carting of ore to the smelt mill is being regularly proceeded with.

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Salt Lake City, Utah Territory, July 17, 1878.

RICHMOND CONSOLIDATED MINING COMPANY (LIMITED).
NOTICE TO DEBENTURE HOLDERS.
The directors hereby give notice that the COUPONS, due and payable on the 25th September instant, WILL BE PAID on and after that date, at the company's bankers, the Union Bank of London, Princes street, E.C.
All coupons must be left three clear days for examination.
By order of the Board,
HUBERT AKERS, Secretary (pro tem.)
44, Coleman-street, London, E.C., September 19, 1878.

INVESTMENTS IN CANADIAN PROPERTIES.
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Selections for the season about commencing, and full particulars of Messrs. HUME AND CO., Crosby Hall Chambers, Bishopsgate street, London, E.C. Enclose stamp.

GLASGOW AND THE HIGHLANDS.
ROYAL ROUTE VIA CRINAN AND CALEDONIAN CANAL by the new steamer "COLUMBA," or the "IONA," from GLASGOW DAILY at 7 A.M., and from GREENOCK at 9 A.M., conveying passengers for NORTH and WEST HIGHLANDS. See bill, with map and tourist fares, free, at Messrs. CHATTO and WINDUS, Publishers, 74, Piccadilly, London; or by post from DAVID HUTCHESON and Co., 119, Hope-street, Glasgow.

JUST PUBLISHED.

MINERAL STATISTICS OF THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND

FOR THE YEAR 1877,

With an APPENDIX.

By ROBERT HUNT, F.R.S.

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Notices to Correspondents.

*** Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be *placed* on receipt; it then forms an accumulating useful work of reference.

SIR,—The answer to "J. H. W." (Stoke-on Trent) in last week's Journal just serves me as well as if I had written you, as I am at a loss how or what books could assist me to gain a certificate for mining. I have been a working miner, and am now overlooker in a coal mine. I shall very likely look out for the books you have named.—F. G.: *Hill Top, Unstone.*

Received,—"A. R." (Paris): We shall give full particulars in next week's Journal —"Shareholder" (Wheal Peevor)—"Constant Reader" (Bolton)—"G. R." (Neath): Write to the Secretary—"A. C. H." (Dublin)—"Mentor" (Brighton) —"Shareholder" (Flagstaff)—"A S."—"C. F." (Hampstead)—"H. G." (Glasgow)—"T H."—"Shareholder" (Wheal Grenville): We could not publish such a letter without the writer's name being appended—"Amicus"—"Shareholder" (Richmond) will find some information in another column, which shows that he is not well informed.

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, SEPTEMBER 21, 1878.

THE EXPLOSION AT ABERCARNE COLLIERY.

Last week there was another illustration of the fact so frequently pointed out by us that explosions will take place in collieries where the ventilation, general discipline, and general arrangements are such as cannot be materially improved in any way. The terrible catastrope at Abercarne, however, has no new features independent of those which have been recognised in connection with all our present mining disasters, whilst every precaution appears to have been taken by the managers to minimise as far as they could the possibility of the gas which the coal gave off igniting. No blasting was allowed, safety-lamps only were allowed to be taken into the workings, and the greatest attention was paid to the ventilation. All these precautions it was admitted by the survivors were taken. Yet a fearful explosion took place, resulting in the loss of nearly 300 lives. The seam of coal, in the getting of which a large number of men and boys were engaged, was known to give off a considerable quantity of gas, and as the workings branched out a very long way, being something like 15 miles in area, more than ordinary attention was paid to the ventilation, so that there was a constant stream of fresh air going to the faces where the men were engaged in cutting, and this is fully borne out by the corroborative evidence of the men, and the fact that the air was carefully measured twice every day and duly reported to the chief manager, and entered in the book kept for the purpose. A very short time indeed before the explosion took place Mr. BETHELL, who at the time of the sad occurrence had charge of the underground workings, had completed a careful examination of the ventilation, which he found in every way satisfactory. Still, with all these precautions and constant examinations, the gas ignited at some working place, in all probability a considerable distance from the bottom, and soon the conflagration spread with lightning-like rapidity, licking up in its course whatever gas there was in the workings in all directions. It is, therefore, evident that there was plenty of gas, so that the important question to which attention will now be directed is as to how it ignited. Was it owing to a defective lamp, the lighting of a match, or to the unscrewing of a lamp for some purpose or other? There must have been a flame of some sort, but the probability is that how it came to be exposed will not be known for those who could clear up the matter are undoubtedly numbered with the dead. As usual there are many rumours in the district, and suggestions out of it, as to how the explosion took place. It is said that one of the workmen was smoking in his working place a short time before the gas went off, but this has been generally disbelieved, as the miners, aware of the danger of allowing such to be done, would not tolerate it. The prevailing opinion in the district around Abercarne, we are told is that in working upwards a large quantity of earth and coal gave way, and, crushing the lamps, left the flame of some of them without any protection, so that the gas ignited. There is no doubt but what a heavy fall of coal and roof would liberate a good deal of gas, but we can scarcely see how a number of lamps could be so placed as to have a "fall" come down upon them. In an ordinary working place there are generally not more than a couple of lamps at most, and they are not usually placed just where coal is to come down. But without speculating as to the probable cause of the explosion, evidence with respect to which will be given when the official enquiry takes place, we may again briefly refer to the cause of explosions generally.

In one of the daily papers it was stated that some of the lads in larking at times put the naked light to the roof, so that any little gas there was would show the usual flame. If such really had been the case there was all the material and means for an explosion, for the quantity of gas at the roof might at one time be much greater than at another. Defective lamps, by which the flame could pass through the gauze, or where the top was taken off, or the bottom either, are, it is to be feared, too often fertile sources of colliery explosions, although direct evidence of such is seldom or never obtained, for those who could give it are generally amongst the victims. But there is another way not generally known, but which recent investigation on the part of practical and scientific men leads to the belief that an explosion may be caused. In a dry mine, where large quantities of small coal are left in the roads and working places, the fine dust is liable to gather about the lamp and get close to the flame, the concussion of the wind after a fall has taken place is then sufficient to draw the finer particles within the influence of the light, and setting fire to them, so that if there is much gas about an explosion is the result. Recent experiments that have been made by Mr. MORRISON and others show that the fine coal is a source of danger, and requires careful watching in a mine where there is any considerable quantity of gas. At the Oaks Colliery, where 360 lives were lost in 1866 by an explosion, the manager, Mr. WILSON, a man of great experience, and who has devoted a great deal of attention to the subject, states that the dust will burn the same as gunpowder, and should be guarded against. At the Oaks, therefore, which is very dry, he has the roads and other places watered every morning simply as a precautionary measure. Now, the Abercarne Colliery we are told, is a particularly dry one, and it appears to be worthy of some consideration whether the dust did not gather about the lamps, and so close to the flame that it might be lighted. The working miners are not aware, we know, that an explosion can result from such a cause, but it would be well were they made acquainted with everything that was likely to endanger their lives whilst engaged in their dangerous employment.

To say that many miners are reckless and capable of committing acts than endanger their own lives as well as the lives of those working with them is considered by Mr. MACDONALD who assumes to himself the right of speaking on behalf of the colliers throughout the country, as not only untrue but a libel upon a body of hard-working and careful men. Unfortunately for him, and those he takes under his powerful wing, the records of our police courts give direct evidence to the contrary, for we find from them that in fiery mines men have been found guilty of smoking in the working places, with matches in their pockets, keys for unlocking safety-lamps, and with actually breaking the gauze of the latter. We do not say that any of the poor fellows at Abercarne were guilty of any such practices. But there is in no large body of men that sense of right but what there will be one or two that will act without thought, and run risks that may be of serious consequences to all. And in this respect we are not aware that the Welsh miners as a body are better than those in other parts of the kingdom.

When the Ferndale explosion took place, in 1867, involving the lives of 178 persons, the jury in their verdict stated that the explosion took place in consequence of a great accumulation of gas, and by "the gas being fired by one or more of the colliers carelessly taking off the tops of their lamps and working with naked lights." These were Welsh miners that were alluded to, and we are not aware that they have altered materially since the Ferndale explosion took place. But the recklessness on that occasion was evidently not confined to two or three of the workmen, for in his report of the catastrophe the Government Inspector, Mr. WALES, stated that "several lamps were found unlocked, safety-lamp keys, and contrivances for opening the lamps were also found in the pockets of the deceased, showing that the greatest want of discipline had prevailed throughout the colliery." But it may be said that in spite of the best discipline men have been proved to have opened their lamps, and even to have smoked in fiery pits, for it is simply impossible for a deputy, let alone a manager, to see what all the men are doing, for very many of them work by themselves. All that it is possible to ascertain with respect to the Abercarne explosion will be brought out in the investigation before the Coroner, but it is to be feared that the actual cause is not likely to be educed by the evidence. Some light, however, may be thrown on the matter when the bodies have been recovered and the workings explored by the mining engineers; when that is accomplished we may again be induced to notice the explosion, as it is only natural to suppose that we shall have a good deal more information with respect to it than we now have. We trust however, that in the meantime the public will liberally respond to the appeal made on behalf of the sufferers, seeing that all classes are indebted to the miners throughout the country for much that leads to their comfort and their daily requirements, whilst more than any other body they have helped to build up the commercial and manufacturing power of England.

ABERCARNE COLLIERY, MONMOUTHSHIRE.

This colliery—the scene of the recent lamentable explosion of firedamp—is situated about nine miles from Newport, on the Monmouthshire Western Valley Railway. Two miles south from Abercarn is Risca Colliery; the strata dip from Risca to Abercarn about 3 in. to a yard, and from Abercarn to Newbridge—one mile further north—there is a slighter dip, beyond which the strata begin to rise northward. The machinery and erections at Abercarn are ranked with the best in Monmouthshire, the colliery being the property of the Ebbw Vale Iron Company, and the coal is leased by them from Lord Llanover.

The winding pit at Abercarn was sunk to the Black vein in the year 1862—300 yards in depth; in section it is 22 by 18 ft., and is walled from top to bottom. The upcast pit—20 yards distant from the downcast or winding—was sunk in the year 1837, and in section is 17 ft. by 11 ft., also walled throughout.

The winding engine erected at the downcast pit has two vertical cylinders, 42 in. diameter, 8 ft. stroke, direct acting and condensing; steam pressure 24 lbs., rope rolls 22 ft. in diameter at first lift. The writer of these notes inspected the surface and underground workings some years ago: coal was then raised in two-decked carriages, each carriage holding two trams of 1 ton each in capacity. The pumping engine is of the Cornish type, having been built and in operation in Cornwall some years previous to its erection at Abercarn. It is placed between the pits, and raises water in the larger one. The cylinder is 85 in. in diameter and 10-ft. stroke; the stroke in the pit is 8 ft., the engine is condensing, and as usual with Cornish mine engines the lifts are all forcing except the lowest one; the total depth of the lifts is 311 yards. The lowest is a bucket-lift 17 in. in diameter; those above increase in size upwards. The second lift has a 16-in. ram, the third 17 in., the fourth 18 in., and the fifth a 22-in. ram raises water to the surface. This engine at the time of our visit was going day and night about two strokes per minute; it will no doubt hereafter have a heavy duty to perform when the water sent down the pit to extinguish the fire caused by the recent explosion has to be pumped up again to the surface by this and probably other strong engines. Two other engines were erected on the surface; one, a large beam engine, had been used for raising coal in the upcast pit from the upper seams, but it is understood has not lately been in operation for this purpose. The coal at Abercarne of late years has been got from the Black vein; the extraction has been going on since the year 1862, and the workings are now of very great extent, so much so that it was deemed advisable in the present year to sink another pit at Cwmcarn, two miles distant, as an additional downcast, by which the ventilation of the mine has been greatly augmented.

The Black vein coal is not only good for steam purposes, it has also the property of keeping its size, and bears exposure to the weather without breaking up to small; on this account it is much in demand for exportation to distant countries and for long sea voyages, and this will account for the large extraction of coal, and the employment of three shifts or relays of men in 24 hours.

The Black vein has been a little worked on the long wall system; it is not considered to be adapted to this mode of working from its great height, and from the absence of refuse or material to fill up the excavated part. The height of good coal is 10 ft. 6 in.; but 2 ft. 6 in. at the top of this is left up as a roof, the shale and rashes above this being too friable to be exposed as a roof. The stall and pillar system has been principally used; the stalls are driven 18 yards wide, the pillars between being 10 yards in width. The cross-headings are made 3 yards wide each, and a pillar of coal left between them of 18 yards. As the cross-headings are usually driven to the rise, or south, the stalls are driven at right angles on each side of them to the extent of about 60 yards, when the working of the pillars backward is commenced. The stalls are known as double stalls—that is, there is a tramroad on each side of a stall, so that always a sufficient airway is kept. The air travels up one side of a stall and down the other throughout the whole of the stalls in connection with a cross-heading. The roof is a bad one, and requires much timber to support it; added to this, there is a continual rising or pucking of the bottom, which is often to be taken up. This furnishes material for a partial filling up of the stalls between the two tramways. The dip of the coal is variable in this mine, so that the cross headings are driven more to suit the dip than the cleat or faces of the coal. The coal is brought down by wedges—no powder is used. Clanny lamps were used by the workmen, principally on account of the better light which they afford as compared with the Davy or Stephen on lamp; but the latter is, no doubt, the best and safest description of lamp to use in this undoubtedly fiery mine, as it was much subject to sudden outbursts of gas, several of these escaping with a loud report daily throughout the mine. The use of the very best form of self-extinguishing lamp seems to be imperative in this case. The tendency of the airways to become contracted, owing to the continual heaving of the bottom, is another source of danger and anxiety, requiring constant attention and labour to keep them of sufficient capacity. Notwithstanding these difficulties, it is understood there has not been any loss of life from explosion until the recent catastrophe, into the cause of which we have no desire to enter at the present time.

During the strike of 17 weeks in the mines of Monmouthshire, in the year 1867, the ventilation of the workings of Abercarne was stopped because no one would go down the pit to fire the furnace; the consequence was that the mine became filled with fire-damp. After this, on the resumption of work, ventilation was created by a waterfall in the downcast and. By opening doors in the mine a certain volume of gas was driven off at at a time into the return airways; this was plainly seen issuing from the top of the upcast during its removal. Two furnaces were used in former times at the upcast pit—one 10 ft. wide and one 8 ft.; the consumption of coal for both was 20 tons in 24 hours. It is satisfactory to have to relate that a Guibal fan was substituted for these in 1871, the diameter of which is 40 ft. and the width 12 ft., whereby the ventilation was increased from 90,000 cubic ft. per minute with the furnaces to about 150,000, thus giving greatly improved ventilation and a security from fire in the mine.

At Risca Colliery, two miles southward from Abercarne, the Black vein is also largely worked. It is about 10 ft. in height, and is brought down by wedging; no powder is used, and Clanny lamps are used by the men. An explosion occurred at Risca in December, 1860, causing a loss of 142 lives. Previous to this time coal was worked by single stalls; in these the excavation was about 8 yards wide, and had one tramway only, the other side being the return for the air, which had an ingress by the tramway. This airway at the far side of the stall was formed by the material cut from the bottom of the tramways, and was so liable to be filled up or become contracted that accumulations of gas were frequently observed, and after the explosion in 1860 the fire was observed to have spread over the whole of the workings of the Black vein. It was believed that fire-damp had accumulated in every place previous to the explosion. Since that occurrence the Black vein has been worked by double stalls, and no explosion of consequence has taken place. The principal seams of coal found at Risca are in descending order:—1. The Rock vein, 4 ft. in thickness.—2. The Under Rock vein, 3 ft.—3. The Grey vein, 3 ft.—4 The Big vein, 9 ft.—5. The Black vein, 10 ft.—The Rock vein and Black vein are each worked at Risca, and both are used for steam purposes.

OUR IRON AND STEEL EXPORTS.

A glance at the exports of iron and steel from the United Kingdom during the ten years ending with 1877, inclusive, shows how great have been the vicissitudes through which the British iron trade has passed in the course of that period as well with respect to demand as to prices. Here is a table showing the quantities of iron and steel, wrought and unwrought, exported from the United Kingdom, year by year, from 1868 to 1877 inclusive, together with the yearly value of the exports:—

Year.	Quantity.	Value.
1868 ... ...Tons	2 041 852	£17 634 395
1869	2 675,331	22 342.080
1870	2 825.575	24,033,090
1871	3.169.219	26,124,134
1872	3 382 762	35 996.167
1873	2 957,813	37,731,239
1874	2,487,522	31.190 256
1875	2,457,306	25 747.271
1876	2 224,470	20 737 410
1877	2,346,370	20,113,915

It will be observed that 1869, 1870, 1871, and 1872 were years of progressive prosperity, while from 1872 to 1876 there was a continually increasing contraction of the imports. It is rather satisfactory to note that the exports rallied to some little extent last year as regards quantity, but it is not at all equally satisfactory to find that the value of the exports presented last year a still further contraction. Lower prices appear to have had the effect of reviving in some measure the external demand for our iron in 1877; but the margin of profit, already small in 1876, must have been still further abridged in 1877. It may be remarked that the increase observable in the demand last year arose almost entirely under the head of bar, angle, &c., iron and railway iron. The increase in the exports of railway iron in 1877, as compared with 1876, alone amounted to 83,600 tons. The annexed table illustrating the exports of our railway iron during the ten years ending with 1877 inclusive shows, however, that the demand has been subject to very great fluctuations during the decade, and that, upon the whole, it has experienced a contraction:—

1868 .....Tons	583 488	1873 .....Tons	785,014
1869	888,010	1874	782 665
1870	1,059,392	1875	545,981
1871	981.197	1876	414 656
1872	945,420	1877	498,256

The great cause of the falling off in the exports, which commenced so sharply in 1873, was the loss by the British iron trade of the American market, partly in consequence of the prostration of the American railroad interest, and partly through the imposition of prohibitive duties by the United States Congress. The decline in the exports did not make much further progress in 1874, but it was greatly accelerated in 1875 by the collapse of the imaginary credit of such dubious States as Turkey, Egypt, and Peru. Up to the spring of 1876 there was some hope that Turkey would be able to do something for her creditors; but when this hope proved fallacious, and it was found that the Turkish empire was practically reduced to a condition of almost hopeless insolvency, a still further shock was given to credit, and the exports of our railway *matériel* experienced a great further shrinkage.

The vicissitudes of our iron exports for the past ten years have been attended, of course, with the most trying consequences to all who have in any way been concerned with the British iron trade during that period. Employed have suffered even more than employers, because, having as a rule scarcely any other resources, they have at once felt the consequences of a reduction of wages, and in many cases a cessation of wages altogether. In 1869 and 1870 our iron trade appeared to be entering upon an era of ever extending prosperity, and in 1871 and 1872 the sanguine hopes which had gradually come to be indulged in were still sustained by the course of events. But in 1873 the spell was rudely broken. The capitalists who had been induced to embark more money in works and plant for the production of iron found to their cost that their dreams of a golden future in which they were to secure a rich reward for their expenditure were mere illusions; and the workmen who had clamoured for higher wages, and succeeded in obtaining them for a time also discovered to their sorrow that they had in reality been only undermining and destroying their own well-being. The last five years have certainly constituted a most sorrowful period in the annals of the British iron trade; let us hope that the future may have some compensation in store.

SAFETY-LAMPS.—We understand that an award of Honourable Mention has been made to Joseph Cooke and Co., miners' lamp manufacturers, Birmingham, for their manufactures exhibited at the Paris Exhibition, including John Williamson's patent. This lamp is a double-patent safety-lamp; and gives a steady and bright light in air of great velocity. Although only patented this year there is a great number in use, and they are much liked. The show-case contains about 20 kinds of lamps, and is an attractive object in Class 50. It is well worth inspection by visitors to the Exhibition, especially those who take an interest in the protection of life in dangerous gases.

THE VAPART DISINTEGRATOR.—Some attention was attracted at the meeting of the Mechanical Engineers in Paris to an improved disintegrator—the Broyenr Vapart—exhibited in the Champs-de-Mars by Messrs. BICHON and Co., of the Quai d'Orsay, Paris. The subject of ore crushing has been much studied in France, and without contesting the value of the several apparatus exhibited by their French and foreign colleagues, Messrs. Bichon regard the Vapart disintegrator as meriting special mention, in consequence of the essentially novel principle upon which it is based. The idea of pulverising bodies by projecting them at a distance of 50 or 60 metres (160 to 180 ft.) per second against segments of hardened cast-iron, without much wear, and at a small cost, is certainly new, and gives results quite unexpected. It has been found in practice that the Vapart disintegrator perfectly pulverises gums, oak bark, and rose leaves, although with regard to minerals it is most efficient, the work done generally increasing with the density of the material operated upon. It is at present being manufactured in England by a firm at Chester, and has been largely introduced in Germany, Austria, and France. A Vapart disintegrator with about 3 ft. 6 in. trays, and 3 ft. 6 in. high, will turn out about 1 ton per hour, and amongst the testimonials received are some which show even a higher yield has been obtained. One of the machines are

shown in class 50 at the Paris Exhibition, and is well worthy of examination.

THE VENTILATION OF COLLIERIES.

CHARGES AGAINST PROPRIETORS.

At the Bacup Petty Sessions, on Wednesday, the following persons were summoned on the information of Mr. Dickinson, Inspector of Mines, and Mr. Martin, Assistant Inspector, for breaches of the Coal Mines Regulation Act:—John Maden, proprietor of New Line Colliery; David Law, owner of Intack Colliery; James Lord, owner of Blue Ball Colliery; and George Pilling, foreman at the latter colliery. Mr. Holden, of Bolton, appeared to prosecute, and he stated that the principal charge against the first three defendants was that under the first general rule, which they had contravened by not seeing that there was adequate ventilation in the working of their mines, while Pilling was charged with not withdrawing the men under his charge from the workings when they were impregnated with bad gas. He also stated that for some time past Mr. Dickinson had had information that a great number of colliery proprietors in the district had been guilty of great laxity in carrying out the law as to ventilation, &c., and during the past month the Assistant Inspector had been all through the district, and in those mines were he found the ventilation so inefficient that a lighted candle in an upright position would not burn he had felt it his duty to report the same.

The cases before the Bench were altogether of a new kind, because the gas complained of was not ordinary gas or explosive gas, but a gas called "black damp," carbonic acid chiefly, which became stagnant, and took a great deal of lifting, and gradually got so mixed up with the air as to render working in it dangerous to human life. Occasionally men got smothered in it, and more frequently it undermined the health of the colliers, bringing on asthma and other diseases. Dr. Angus Smith had lately been making some scientific experiments on black damp, and had found that where it existed to the extent of 2 per cent. it would put out a lighted candle when in an upright position, and 4 per cent. would destroy human life. Mr. Martin would tell the Bench that in all of the defendants' collieries where men were working a lighted candle when set upright had been put out five or six times in different parts of the workings, the height of which was 3 ft. There was no artificial ventilation, all the ventilation that there was being natural.

John Maden was also charged with employing, in contravention of the 5th section of the Act, children under 12 years of age for more than three days in one week, and more than six hours in one day, and also with not keeping in his office a plan of the workings made up to the last six months. Mr. Holden said there was a large number of colliery proprietors in the district who considered that if they sent the children employed by them to school the requisite number of times they could keep them working as long as they liked without becoming amenable to the law; and Mr. Dickinson wished it to be understood that such an evasion of the law would not be permitted. The maximum penalty for each offence was 20*l.* for proprietors, and 2*l.* for foremen, but he only asked for a heavy penalty in the offence respecting ventilation. With regard to the case of George Pilling, the foreman, the evidence would show that he was at the Blue Ball Colliery while it was in the condition named and did not order the men to withdraw. Mr. Dickinson wished it to be known that underlookers and foremen could no more shelve their responsibility than proprietors. Evidence having been given by Mr. Martin all the defendants pleaded guilty, but said that black-damp had collected before they were aware of it. Maden, Law, and Lord were each fined 5*l.* and costs for allowing inadequate ventilation, and Piling 20s. and costs for not withdrawing the men. Maden was also fined 5s. and costs for improperly employing children, and 2s. 6d. and costs for having no plan. Law was further fined 2s. 6d. and costs for keeping no report of the condition of his mine, and 5s. for using an iron instead of a copper pricker.

These cases it appears are only the beginning of the series.

REPORT FROM CORNWALL.

Sept. 19.—Although still without any very definite ground for the opinion than the recent improvement, the belief that ere long the tin market will assume a far more encouraging aspect is rapidly extending in the West; and certainly matters cannot long remain as they are. There are barely half a-dozen tin mines in Cornwall that could make a profit under present conditions, and it is entirely owing to the remarkable improvements that have taken place of late years in working that there are so many. We seem, moreover, to be on the eve of several important steps in advance, and it is not too much to anticipate that, with fair encouragement, another couple of years will see the old county fairly able to compete in all particulars with any mining district in the world. More, perhaps, depends upon the next six or twelve months than upon any similar period in the mining history of the district. Those mines that can fight through that interval will find themselves placed in possession of modes and means of working that will be equivalent almost to a century of ordinary advance as compared with the conditions of ten years since. There never was such a desire to progress, and, impelled by necessity, there never were so many means of making progress afforded. Cheap production is now the problem to be solved, and not a month passes but some advance in that direction is being made. This is really the direction in which encouragement is most clearly visible; for it will be some time yet ere the metal market assumes what we may regard as its natural and normal relations; and, of course, in its degree what benefits tin mining in a practical sense must have its influence also upon mining for copper and lead, in both of which we are glad to see that a little more activity is being shown. The Combmartin district for example, is unquestionably a veritable "mine of wealth" if it is vigorously and judiciously dealt with, and there are several points in Cornwall where the reworking of copper mines would undoubtedly pay.

The following table shows the amount of the calls and dividends made and declared in Cornish mines during the past two months. It must be borne in mind, however, that it does not present an accurate idea of the position of mining at the present time. Nearly the whole of these calls are the result of liabilities which have been accumulating over a long period, while the dividends have all been earned under present conditions. The comparison, therefore, is far more favourable than at first sight appears, and we very much question whether, taking one mine with another, our mining industry is not very nearly paying its way:—

CALLS.	
Carn Brea	£20,000
Tincroft	9,000
West Basset	6,000
Wheal Owles	5,000
Cook's Kitchen	1,225
Wheal Basset	1,024
North Levant	800
Levant	750
West Frances	768
New Cook's Kitchen	468
Blue Hills	590
Total	£45,625
DIVIDENDS.	
South Condurrow	£2,449
Dolcoath	1,074
East Pool	800
Wheal Peevor	750
South Wheal Frances	1,125
South Caradon	512
Total	£6,710

We are indebted to Mr. J. H. Collins, F.G.S., for the only full and adequate account of the system of china-clay working which we possess, and this will be found contained in his newly-issued work —"The Hensbarrow Granite District, a geological description and a trade history"—published by Messrs. Lake and Lake, of Truro. It is admirably written and well illustrated, and puts the reader in possession of the greatest body of facts that has ever been accumulated in connection with the china-clay industry, now unfortunately, like nearly everything else in the West, so much depressed. The book is as practical as it is scientific, and in every way worthy of the author.

It is stated on good authority that negociations are going on for the establishment of potteries on an important scale in the Devoran district, in which hitherto neglected clays will be utilised. Messrs. Candy have well shown what can be done.

A new mineral has been discovered to which the name of Liskeardite has been given, from the place of its discovery. It is very rare, and only few specimens exist.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Sept. 19.—First-class finished iron houses are confidently looking for increased business as the result of the drop in prices of 1*l.* per ton announced last week. At present the accession of new business has not been conspicuous, but this naturally arises out of the circumstance that the market is still unsettled. That the step is a wise one, considering the present reluctance of consumers to buy, men who have been longest in the trade generally admit. By some buyers the drop is believed to be the prelude to the bringing down of marked bars to 7*l.* per ton, a course which, as I reported at the time, certain influential ironmasters averred it would have been wise to pursue last Quarter-day. Time alone will show whether the further 10s. is to come off. If trade should now begin to improve steadily the probabilities are of course against such action being taken. Earl Dudley's price for minimum bars is now 8*l.* 2s. 6d., and the quotation for the bars of the other marked iron firms is 7*l.* 10s. Sheets, plates, and other descriptions of iron are priced in proportion. Unmarked finished iron is unaltered in price upon the open market, but doubtless keen buyers will as regards medium as distinct from common iron take care to secure somewhat easier rates than prevailed before last Thursday. Pig-iron rates are declared unchanged by makers and agents, but of course they are not at all strengthened by the drop in the manufactured iron. All mine Shropshire and Staffordshire houses continue to quote 5*l.* for cold-blast, and 4*l.* for hot-blast sorts. The 5s. per ton under these prices, however, which has prevailed in actual transactions all the quarter is maintained. Furnace coal is officially 9s. per ton still.

The drop in iron has not improved the prospects of the colliers' agents in their attempts to get up a successful agitation for increased wages. Nevertheless they are, it is reported, about to hold a meeting, at which a deputation will be appointed to wait upon Mr. E. Fisher-Smith, as Chairman of the Coalmasters' Association, asking him to call a meeting of the trade with a view to the increasing of wages. The question of Unionism also continues to be pushed forward by the agents, and in promotion of this object a miners' conference of non-Unionists and Unionists alike is, it is understood, being arranged for to be held at Tipton towards the close of the month.

An early termination of the nailers' strike in Staffordshire is now regarded as a foregone conclusion. In certain localities the men are resuming this week upon the last issued list of the masters, and although the general body maintain a show of resistance, it is anticipated that they, too, will very shortly give way.

The North Staffordshire Iron Trade maintains the improved condition recently reported. The coal trade remains unsettled upon the wages questions. It is announced that, with a view of lessening the cost of production, Mr. Lucas, the manager of Earl Granville's collieries, intends introducing a sort of butty system into the working of his lordship's mines. The men affected are threatening stout resistance, affirming that under the new requirement it will be impossible to make overtime, which will have the effect of reducing the earnings of some of the men.

TRADE OF THE TYNE AND WEAR.

Sept. 18.—There are some encouraging features in the Coal Trade at present. Some of the great London gas companies are making enquiries with a view to making contracts for a year or two at present rates, and some have been made for a long period at a little over the present rates. As remarked lately in this letter, demands have been made for a reduction in working prices at many of the Northumberland works, and in some cases concessions have been made by the men. At Camboi, where full work has been going on for some time, the men have accepted a reduction of 7½ per cent. At Seaton Delaval a reduction of 8 per cent. has been accepted by the men, and minor reductions have been effected at other places. There has been a little improvement in trade generally, but the increase as yet is not great. There is an improved enquiry for house coal, and the approach of winter may now be expected to create a demand for this coal. There certainly is a better tone in this trade, and slightly improved rates have been got in the London market. The autumn shipments of steam coal have also been fair, and the best works are well employed; second-class works are also securing more orders. The shipments of coal and fire-bricks above bridge in the Tyne continue, and are likely to be increased. There are more enquiries for coke, buyers in advance for next year are more numerous, and contracts are likely to be made on those conditions. The great works at Elswick are well employed in most branches; of course, the main productions of those remarkable works are specialities—hydraulic machines, drawbridges, guns, &c. A wharf has been constructed on the Tyne near these works, where guns and machinery are shipped. A large quantity of ore is also delivered here for the Elswick furnaces. This ore is chiefly hematite, brought from Spain.

There was scarcely so good an attendance at the iron market at Middlesborough, on Tuesday, as on some recent occasions, and business was quiet throughout, the transactions being limited, and mostly for small lots. The market, however, was steady, and makers are pretty firm; quotations, however, are unchanged. No. 1 is 43s.; No. 3, 39s. to 39s. 6d.; No 4 forge, 38s. 6d., less 1 per cent. Buyers will not give more than 39s. for No. 3, and there is sufficient iron to be bought at that rate to meet current wants. Some of the makers keep pretty firm, however, at 39s. The pig-iron makers generally report themselves well sold; their commitments in a number of cases carrying them well into the winter. Under these circumstances they keep pretty firm. In other cases, however, where makers are not sold they are selling at little, if any, advance upon the rates which ruled at the early part of the summer, and the iron they can dispose of will probably be sufficient to keep the market going for some time to come, at least till the shipping season is over, when the pressure for delivery will have largely ceased. Thus the chance of any rise in the market is now a poor one. The pig-iron trade is, however, on the whole, in a fairly healthy condition. The deliveries both for shipment and inland consumption are progressing rapidly, and the present month is expected to show a material decrease in stocks. The manufactured iron trade remains unchanged in its most essential features. There is but a small demand experienced in any department. Bar makers are, however, looking forward to an increased requirement, which usually appears at the end of the summer. The prices of all sorts of manufactured iron are now temptingly low if there be any real need on the part of consumers. The price of ship-plates is 6*l.* 5s.; ordinary bars, 5*l.* 10s.; sheets, 7*l.* 15s.; angles, 5*l.* 10s., all less 2½ per cent. commission.

A part of the Ashington Colliery was offered for sale in Newcastle on Wednesday—ten 1-32nd shares in this current going colliery. The company have a royalty of upwards of 3000 acres, and two excellent seams of steam coal. The present output is about 1000 tons per day. The sale was started at 30,000*l.*, but no advance on this was offered. This colliery is well worth attention, but such is the feeling at present respecting the coal trade that the best works in the field would scarcely find a ready purchaser. It is likely, however, that the Ashington shares will be sold by private contract.

The shipment of gas and steam coal to America has been nearly stopped by the narrow and selfish policy of our American cousins. The shipment of corn from that country to these ports afforded an excellent opportunity of sending out coals as a return cargo, and surely the amount of freight ought to be considered a sufficient protection for the American coalowner; however, a duty of 3s. 6d. per ton is levied on all coals imported there, and this has enabled them to nearly strangle this rising trade.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Sept. 19.—The interest taken at the time in the amount of profit imagined to be derived from my supposed lead mine leads me to answer generally a former enquiry made by me, respecting a suppositious copper mine. Given such a mine, with a capital of 100,000*l.*, with 3 tons of copper ore per fathom, of the value of 7 per cent., can any profits be made, and if so, what amount of ground would have to be cut yearly to pay a dividend of 10 per cent. Let us suppose—what I fear at present prices there will not be—a profit of 2s. per unit over all costs; this would give a profit of 42s. per fathom, so that, roughly speaking, there would require 5000 fms. to be stoped away yearly to give the supposed profit. To do this stoping there would be required a force of about 150 miners underground. If the average value fell below 7 per cent., or the profit below 2s. per unit, the supposed profit would of course suffer in proportion.

A sale has been announced of the plant of the Ruabon and North Wales Company at the Preesgwyn and Moreton Hall Collieries, but it has been postponed. A petition for the winding-up of this company is to be heard before the Chancellor of the Duchy and County Palatine of Lancaster on Oct. 22. The plant of the Afoneitha Colliery, one of the old collieries west of Ruabon, is also to be sold off. This is almost the last of the smaller Ruabon collieries, at which the celebrated Ruabon Yard coal was originally raised and became famous. The coal is hardly found of such good quality and in such good condition as we travel eastward, although of course it may resume its original character in that direction.

The St. Martin's Colliery (late Ifton Rhyn) is again at work, and selling coal. A little trade has been doing at the limestone quarries for agricultural purposes, and in the more northern quarries for chemical purposes also, but owing to the absence of orders for fluxing stone the trade is only the shadow of its former self. Some stagnation is also felt in the fire-brick and tile trade, although some of the larger and older works are fairly busy. One good works—the Plas Ucha—is standing, owing, it is said, to a disagreement among the partners.

Some of the large ironworks have a very forlorn aspect, rust, grass, and the quiet of death prevailing over the greater part of the area covered by them. The Frood Works, near Wrexham, may be taken as an exception.

Canals are not yet quite superseded by railways, for the Shropshire Union Canal Company at their recent meeting declared their usual dividend of 3 per cent. The Llangollen and Corwen Railway Company, besides providing for the interest on the 5 per cent. preference shares, have just declared a dividend of 3½ per cent. on the ordinary shares, being an increase of ½ per cent. over the corresponding half-year in 1877.

The Welsh National Eisteddfod was opened yesterday at Birkenhead. Mr. F. Fanning Evans, Her Majesty's Inspector of Metalliferous Mines for North Wales, was to have read a paper "On the Mines and Miners of North Wales," but he was unfortunately prevented from being present. In his absence Prof. McKenny Hughes, M.A., F.G.S., of Cambridge, gave an able extempore lecture on the subject. Prof. Hughes' scientific knowledge has a wide range, but his lecture lacked that practical acquaintance with the subject which Mr. Evans's professional duties, apart from his early training, gives him.

Among the prizes distributed yesterday was one of 6*l.*, a very inadequate remuneration, for the best Welsh dictionary of philosophical and scientific terms. This was awarded to Mr. John E. Lloyd, a student at the University College of Wales. If the work of translating scientific and technical books into the Welsh language is to go on, and be successful, this work of Mr. Lloyd's should be a very useful one. I fear some of the Welsh equivalent words will be long compound ones, like similar words in the German. Thus the Welsh word for microscope is literally "seeing little things." Davidd Morganiog also contributed some observations on the South Wales coal fields. The words of the modern song—

> There was Jenny Jones and Osborne Morgan
> And William Williams from Glamorgan,
> And Sir Watkin Wynn, he played the organ
> To every one's delight—

are not quite literally true, but the original Jenny Jones could be there. Mr. Osborne Morgan is there with credit to himself and his country. Sir Watkin can hardly play the organ, except it be a barrel one, but however he played it it would be to every one's delight, and there are few more genial and hearty Welsh gentlemen, or one with a larger interest in mining properties, as he, and he always does his duty at Eisteddfodau when he is called to take part in them. Indeed, one marked feature of recent gatherings of this kind is the great interest taken in them by the gentry, and especially by those who formerly treated them with some degree of contempt. It may be stated here that the Welsh miners and quarrymen have endowed a scholarship at the University College. When will such an idea occur to the English miners, or to their professional friends?

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Sept. 19.—Of course the great topic of discussion in the district is the shocking colliery catastrophe which has recently occurred in the Ebbw Vale Company's pit at Abercarne. Now that the details are pretty well before the public it is calculated that 263 lives have been lost. Such a disaster is unparalleled in the history of the district, and almost in those of the country. The next thing to do is to get the bodies out of the pit. The colliery was for some time on fire, and in order to extinguish this it was decided to flood to a necessary height. Now sufficient water has been poured in, and preparations have been made to pump it out. It is impossible to go down by the Cwmcarne shaft on account of the gas, which is coming up in large quantities. Mr. Higson, the company's consulting engineer, and a number of other gentlemen, including Mr. Pond, the manager, are on the spot, and are working hard. Mr. T. Cadman, Her Majesty's Inspector of Mines, and his assistant, Mr. Bain, have also been in attendance. The inquest has been formally opened, and will be resumed to-day before the Coroner for the district, Mr. Brewer. Subscriptions are pouring in from all parts of the country. The Ebbw Vale Company have subscribed 1000*l.*, and each of the directors 100*l.* Her Majesty the Queen has expressed her desire to give the sum of 105*l.* The destitution and distress among the relatives of the deceased are very great, for it must be remembered that trade has been so long bad and wages low that the poor have had no chance to save the bare necessities of life being as much as they could obtain. Relief meetings have been held in various parts of the district, and a large and influential central committee has been appointed. Colonel Lyne and Mr. Arthur Lyne are the secretaries.

Mr. Halliday has been down in South Wales advocating the again forming a local Miners' Union. He has addressed a large meeting of colliers at Ystrad, and it was resolved to establish a local branch in the Rhondda Valley of the Amalgamated Miners' Association.

The Iron Trade presents but few fresh features this week. There is a little better tone, perhaps, in trade, but there is no change of any importance. The rumour about Cyfartha has come, and died away again, and it is feared that there was no ground for it. The iron rail orders in hand are not numerous, and masters are often obliged to refuse orders in consequence of the low quotations. There is apparently a little better enquiry for bars, but the amount turned out is not large. Clearances during the week have not been quite so large, and the quantity of iron ore arriving at Newport has rather fallen off. The steel industry is in about the usual state; there is a fair demand for rails, but at very low prices. The Tin-Plate Trade is also materially unaltered. Prices are unremunerative, and the demand far from brisk. There is a little more activity in the Coal Trade, particularly so far as steam qualities are concerned. Ship-

ments from Cardiff have increased to some extent, mainly on foreig account. On the other hand, not quite as much as usual has been cleared from Newport The house coal department is quiet, as usual, but there are some signs of increasing animation. The patent fuel department continues dull, and to all appearance is likely to remain so.

Referring to the Mines Regulation Act, Lord Aberdare writes—"I have seen the additional cost imposed estimated as high as 40 per cent; but it has always seemed to me an extravagant estimte. I have heard it estimated variously by coal-owners, workmen, and Inspectors of collieries at from 6d. to 3s. per ton. My belief is that by far the greater number of the conditions imposed—I might perhaps, safely say that all of them but two—are such as are voluntarily practised in the best managed collieries, the main object of the Act being to secure health and life by bringing all collieries up to the highest known level of good management. The two exceptions are those which affect the labour of children and youths under 12, and between 12 and 16 years of age. It is said that the restraint of the employment of youths of from 12 to 16 years of age to 54 hours a week has practically determined the length of the full-grown collier's working day. There is some truth in the allegation; but it must be borne in mind that the action of the colliers themselves, quite independently of the Act, has often carried the restriction of the working hours beyond the limits thus indirectly imposed by the Act.

Original Correspondence.

RICHMOND MINING COMPANY.

SIR,—I am sorry that Mr. Brereton should think that I in any way misrepresented the purport of his letters. I had certainly no intention of doing so, and am unable to discover what it is of which he complains. The evidence of Messrs. Probert and Wren, on which Mr. Brereton now makes such strong comments, was given in February, 1877, at which date, during Mr. Probert's attendance as a witness at San Francisco, he left Mr. Brereton in charge at Eureka. The evidence at the trial was fully reported in the Eureka Sentinel, Mr. Brereton, doubtles, therefore, read it at the time of issue. That evidence was laid before the committee of investigation; Mr. Brereton, therefore, brought no new facts to their notice or to the knowledge of the shareholders, but he now states that he took for his text the editorial remarks in "the Sentinel of June 27, 1878, which had not been repudiated by the management at Eureka." The first of those remarks was that Mr. Probert was in a position to give the English company some trouble under certain contingencies. Admitting the fact, which would equally apply to any person entrusted with proxies, or with a power of attorney, the remedy was speedy and certain in the event of a proxy power being abused, as such proxy could only be used at a meeting of the shareholders of the Richmond Company of Nevada, duly called and advertised, of which the London Richmond Company would receive due notice, unless a conspiracy existed embracing all the board of the Nevada Richmond. Mr. Brereton says that the shareholders do not probably know that there was a former company with the title of the Richmond Company of Nevada, and he then refers in proof to the Memorandum of Association attached to the original prospectus, a document every shareholder must have seen. The first American Richmond sold its property to the English company, and it was a matter of indifference to its shareholders what became of the former company, and at the time that disappeared from the list the legal advice to get Mr. Clarence King to deed over the Richmond mines to an American incorporation had not been given. There is therefore no shadow of "dark ways or tricks" in the case, as Mr. Brereton insinuates.

I cannot understand why Mr. Brereton should complain that the English company having to deal with property in a foreign country complied with its laws, inasmuch as they have hitherto worked under them with entire success. On technical or legal grounds it might, perhaps, be stated that the English board in giving their proxy power to Mr. Probert had parted with direct control while that existed, but as that power could be withdrawn instantly, the English directors could with a safe conscience continue to legislate as if no such power existed, and draw their fees without compunction. Mr. Brereton states that I am wrong in asserting that all the locations (20 in number) were "obtained direct by the Nevada Richmond Company, except the three I named, and he adduces five locations which were obtained by the former company at second-hand; I was quite aware of that, but my statement was in reference to the relation between the two companies, and to illustrate the fact that the Nevada Richmond held direct 17 locations, in which the English company only obtained an interest through the 10,995 shares it held out of 11,000, and I repeat that the cause of the late contest with the Eureka Company arose out of the extension of the lode in some of the 17 locations in question into ground which the Eureka Company claim, unlawfully as I believe.

I was quite right in stating that the legal difficulties to which I made reference occurred towards the end of 1876, at the time when Mr. Benjamin is reported to have given the advice to obtain an Act of the Legislature in Nevada. Mr. Brereton says that such legal difficulties commenced in January, 1877, that being the time when the injunctions were obtained. It is quite true that the patented properties conveyed by the Nevada Richmond to the English Richmond, as well as the 10,999 shares it holds in the former company, were mortgaged to myself and Mr. Hopkins as trustees for the debenture-holders, but that was only for 50,000*l.*, and for a short term, which expires in a few months, and the transaction has, therefore, no real bearing on the motives for originating the American Incorporation or keeping it alive, which most certainly should be done till something better can be devised. JOHN ELLIOTT.

Sept. 20.

THE RICHMOND MINE.

SIR,—I have noticed with astonishment and regret the unscrupulous and unjustifiable attacks which have recently been made on this property, and by persons whose duty and interest one would think should be to uphold the integrity of the company. They seem to have had only one aim in view—to endeavour to frighten holders out of their shares to suit their own purposes. They were particularly careful themselves in informing the world they had sold their shares, Mr. so and so had sold, and Mr. some one else was going to sell likewise, that the bonanza was exhausted, and that the company had no title to the property. Now as regards the mine, I have it from reliable authority on the spot that it has been steadily improving for a long time, and up to a few days ago it never looked so well, and Mr. Rickard in his letter dated the 28th ult. says—"When we again start up the furnaces we shall have a long and profitable run," he also sends a sketch of the great discoveries made in the 500 ft. level.

As regards the title, I will refer your readers to Mr. Vallance, the company's solicitor, who has never, I am informed, sold a share, so I presume he is perfectly satisfied. Things are looking brighter in San Francisco; for instance, the Bodie Company's shares have risen from $4 to $50 in a few days, and returned $625,000 the first month of the mill running. Sierra Nevada have also risen from $8 to $85 in 30 days, and the Eureka, which adjoins the Richmond, has recently struck a fine body of ore in the 1200 ft. level. This will give them reserves for many years to come, as this lode, like the Richmond, varies from 200 to 600 ft. in width.

Draper's Gardens, Sept. 20. ——— HENRY GUTIERREZ.

PATELEY BRIDGE MINE.

SIR,—In answer to the letter from "Fair Play" in last week's Journal, headed "Pateley Bridge," I beg to say that I purchased the mines from Mr. Hanley Hutchinson, and formed the present existing company in 4000 shares of 5*l.* each, 3000 of which have been issued. While acting as chairman I also created the present existing debentures, amounting to 5000*l.*, the greater portion of which were subscribed for before I ceased my connection with the company. If "honour is to be given to whom honour is due," Mr. Hutchinson recommended the sinking of the shaft and the driving of the level which have resulted in the present discovery. In the level above an important discovery had been made, fully warranting this course. Capt. Williams, of Van, has never in any way sought to lay claim to being the discoverer of the present course of ore. He recommended the proceeding which was being pursued by the manager of the mines—Mr. C Williams; and that if appearances warranted in the driving, of which he had no doubt, then the unwatering of the western portion of the mine by driving a level from the east, as has been so repeatedly set forth in your paper; this had been endorsed by Mr. C Williams. I am not aware that there has been any "new *regime*" instituted in the management of the mine, except that Mr. Hutchinson occupied the chair vacated by me.

Austinfriars, Sept. 20. GEORGE BATTERS.

WEST TANKERVILLE MINING COMPANY.

A general meeting of shareholders was held at the offices of the company, Austinfriars, yesterday, Mr. Wm. Edwards in the chair, for the purpose of authorising the liquidation to carry into effect the suggestions made at the meeting of shareholders held at Wolverhampton on August 9 last, namely:—

To transfer the leasehold interest in the mines and property, and the plant, machinery, and other effects of this company to a new company to be registered with a capital of 30,000*l.*, divided into 30,000 shares of 1*l.* each, of which 9000 shall be preference shares entitled to a preference dividend of 6 per cent. out of the profits of each year, and to participate in any further profits after payment of a like dividend to the owners of the ordinary shares, such transfer to be made upon the terms and conditions following, viz:—

1.—The fixed plant and machinery, in consideration of the issue of 9000 six per cent. preference shares of 1*l.* each in the new company to the holders of the 3000 preference shares of 3*l.* each in this company, and 3000 ordinary shares to the holders of such preference shares, in discharge of all claims in respect of overdue interest thereon; and 2, the loose plant, machinery, tools, implements, stores, and other effects, in consideration of the payment by such new company of all the debts and liabilities of this company, including the costs, charges, and expenses of and connected with the liquidation of this company, and the carrying on operations at the mine pending the completion of such transfer.

Twelve thousand of the ordinary shars in the new company to be allotted fully paid, as a bonus to the subscribers for the remaining 6000, and to be offered in the first instance to the shareholders in this company; also, to authorise the liquidators to carry on such operations at the mine as they may in their discretion consider necessary, pending the completion of the above arrangements, and to pass such resolutions as may be considered necessary for the purpose of carrying out and giving effect to the above suggested arrangements, or any alteration or modification thereof which may be considered desirable.

A SHAREHOLDER asked whether the scheme was the scheme of the directors.

The CHAIRMAN said the scheme had received the unanimous assent of the large numbers of preference and ordinary shareholders who had attended the second meeting of Wolverhampton, at which Mr. Crawshay was also present.

The SHAREHOLDER said he thought the preference shareholders were deriving greater benefit than the ordinary shareholders. He thought both classes should come in on the same footing.

It was explained that on a previous occasion the preference shareholders had advanced money for the benefit of the ordinary shares, and that the present mode of raising the money was the ordinary business like one.

After a short discussion, the CHAIRMAN moved "That the liquidators be authorised to transfer the leasehold interest in the mines and property, and the plant, machinery, and other effects of this company to a new company to be registered with a capital of 30,000*l.*, divided into 30,000 shares of 1*l.* each, of which 90 0 shall be preference shares, entitled to a preference dividend of 6 per cent. out of the profits in each year, and to participate in any further profits after payment of a like dividend to the holders of the ordinary shares, such transfer to be made upon the terms and conditions following:—1. The leasehold interest in the mine and the fixed plant and machinery, in consideration of the issue of 9000 six per cent. preference shares of 1*l.* each in the new company to the holders of the 3000 preference shares of 3*l.* each in this company, and 3000 ordinary shares to the holders of such preference shares, in discharge of all claims in respect of overdue interest thereon: and 2. The loose plant, machinery, tools, implements, stores, and other effects, in consideration of the payment by such new company of all the debts and liabilities of this company, including the costs, charges, and expenses of and connected with the liquidation of this company, and the carrying on operations at the mine pending the completion of such transfer. Twelve thousand of the ordinary shares in the new company to be allotted fully paid, as a bonus to the subscribers for the remaining 6000 and to be offered in the first instance to the shareholders in this company."

Mr. BUSH seconded the resolution, which was put and carried unanimously.

On the motion of the CHAIRMAN, seconded by Mr. PYNE, the following resolution was carried unanimously:—"That the liquidators be authorised to carry on such operations at the mine as they may in their discretion consider necessary, pending the completion of the above arrangements."

On the motion of the CHAIRMAN, seconded by Mr. FERGUSON, the following resolution was carried unanimously:—"That the liquidators be authorised to make such alterations in the details as they may consider necessary for giving effect to the above arrangements."

A vote of thanks to the Chairman closed the proceedings.

AUSTRALIAN MINES.

YORKE PENINSULA.—The directors have advices from the Committee of Inspection at Adelaide, with reports from the Kurilla Mine to Aug. 5.—Kurilla Lode: The 55 is driven east 4 fathoms and west 2 fathoms from Hall's shaft In the eastern drive there is a straight and smooth terminal south wall, but the north wall is not seen. For the first 2 fathoms the lode is composed of schist, slightly mixed with vein stuff, whilst the next 2 fathoms contain more vein stuff, for the most part quartz, mixed with yellow copper ore and pyrites. I do not expect any material change in this drive for the next 4 or 5 fathoms. In the western drive there was a continuation of the straight wall for the first fathom, when a slide came in from the north-west. A small vein of rich yellow ore came in with the slide. I am hopeful that these occurrences may be followed by good results, especially when the slide meets the western point of the large quartz lode eastward. It is also likely to fall into the shaft at a little below the 55, and make it easier for sinking. At the 45 west I continue to drive on the wall referred to in my report of the 8th ult.; beyond occasional stones of yellow copper ore there is no important change. The stopes in the 45 east have not fallen off in the yield of ore, or 4 tons of 20 per cent. per fathom.—Morphett's Lode: The engine-shaft is 7 fathoms below the 30. The north branch, referred to last month, is now in contact with the main lode, and the yield of ore is rather below what it was then, but may be taken at 3 tons of 18 per cent. ore per fathom in the bottom and each end of the shaft. I continue to drive the 30 east, and have not broken any ore from the reserve here.

This drive is now in a comparatively poor piece of lode, lying between the first and second shoots of ore; counting from the eastern boundary westward it will soon reach the rich lode gone down in the bottom of the 20 in a line with the No. 1 trial shaft. No 2 winze east at the 20 is holed to the 30. I have let the back of the 20, east of winze, in a line with the trial shaft, to four men, at 3*s.* in 1*l.* I have thoroughly ventilated the north branch by a small shaft from the surface, and a cross-cut from the main level at the 10. I have let the bottom of the 10 to two men, at 7*s.* 6*d.* in 1*l.*, and have another pitch in the back yet to let of similar value. I am also driving north at the 30 to intersect the branch at that level. The rock coming from the cross cut is so interlaced with veins of ore as to pay for driving, if crushed and jigged. All the machinery and pitwork are in fair condition, and working well. On the whole, the condition of the mine, having regard to the advanced state of the engine-shaft in relation to the reserves of ore gained, never was so good as now.—Ore Returns: Ore on hand July 31 last, 273 tons of 17 per cent. ore and 760 tons of dredge ore of 5 per cent. A shipment of 160 tons of 20 per cent. ore per Ontolpa was being made.

SCOTTISH AUSTRALIAN.—The directors have advices from Sydney, dated Aug. 3, with reports from the Lambton Colliery to the 1st of that month. The sales of coal for the month of July amounted to 17,332 to s.

REFRACTORY GOLD AND SILVER ORES WANTED.—Apply, with terms and analysis, to "Chemico," 56, Moorgate-street, E.C.

RAILWAY COAL TRUCKS, in good condition, and at low rates, MAY BE HAD ON HIRE FOR THE WINTER SEASON of G. E. BEVAN AND CO. (LIMITED), NORTHAMPTON or STAFFORD.

TENDERS are INVITED for TEN THOUSAND TONS of BLUE STONE, averaging 35 to 40 per cent of ZINC and LEAD.
Apply to "Blue," care of Editor of MINING JOURNAL, 26, Fleet street, E C.

TO NICKEL REFINERS, &c.
A VALUABLE NICKEL PRODUCING CONCERN in SWEDEN is to be DISPOSED OF on very advantageous terms. It is in excellent working order, and possessing facilities for inexpensive transit of produce to ports.
Full and complete particulars will be afforded confidentially to *bona fide* enquiries upon application, addressed in first instance to "P. H.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

WANTED, a RESPECTABLE FIRM of BROKERS, to ASSIST in the LAUNCHING of a COMPANY to WORK a NEW PATENT in the METAL and CHEMICAL TRADE.
Apply, by letter only, to "D.," 184, Queen's road, Dalston.

WANTED, a NEW or SECOND-HAND direct-acting condensing PUMPING ENGINE, complete, from 50 to 70 in cylinder, delivered at Egremont Railway Station, Cumberland, and afterwards ERECTED and SET to WORK at the MINES.
Full particulars as to age, &c. (if second-hand), saying where delivered and cost of erection, if not as above, with plans and price, to be forwarded to Mr. HENRY WOOLCOCK, C.E., Whitehaven.

THE ADVERTISER WANTS A SITUATION as CERTIFIED COLLIERY MANAGER. Thoroughly practical, and has had great experience in Long-wall Work Moderate salary required.
Address, "N. O. P.," *Express* Office, Wakefield, Yorkshire.

TO INVESTORS.
REQUIRED, ONE or TWO GENTLEMEN, to JOIN ADVERTISER in CARRYING ON WORKS that would yield a good and lasting profit. Every facility for doing a large trade. Railway adjoins the works.
For particulars, apply to R. J. RUTTER, 5, Pyne's-terrace, St. David's, Exeter.

£10 REWARD.—I, CHARLES T. GILBERT, of the PHŒNIX BLUE BRICK AND TILE WORKS, Hingston Down, Gunnislake, Calstock, proprietor of a Patent granted to FREDERICK ARTHUR CORWELL, of Gunnislake, Calstock, in the county of Cornwall, for the INVENTION of IMPROVED NON-POROUS and VITRIFIED BLOCKS, BRICKS, and other articles for various purposes, the said articles being manufactured from either or both the rocks known in the counties of Devon and Cornwall by the names of "killas" or "elvan," hereby give notice I will pay the above reward to any person or persons giving such information to my undersigned solicitor as will lead to the conviction of any person or persons INFRINGING the RIGHTS of the said PATENT. (Signed) CHAS. T. GILBERT.
Witness—CHRISTR. V. BRIDGMAN, Solicitor, Tavistock.
Dated this 3rd or September, 1878.

TO COLLIERY PROPRIETORS.
TENDERS FOR GAS COALS.
THE DIRECTORS of the SHREWSBURY GAS-LIGHT COMPANY are desirous to RECEIVE TENDERS for the SUPPLY of the best description of SCREENED GAS COALS and CANNEL, for a period of three years, commencing March 25th, 1878, and terminating March 25th, 1881. The coals to be as free as possible from sulphur, bats, bind, refuse, and dirt, and shall be weighed upon the company's machine (24 0 lbs. to the ton), and delivered free, by and at the expense of the contractor, at the London and North-Western or Great-Western Goods Station, Shrewsbury.
The estimated quantity required yearly will be 5000 tons of coal, and 500 tons of cannel, in addition to that already contracted for.
Tenders, specifying the coals and the pits at which they are to be raised, must be delivered on or before the 24th day of September inst.
The lowest or any tender will not of necessity be accepted.
S. B. DARWIN, Secretary.

TO BE SOLD (pursuant to an Order of the High Court of Justice, Chancery Division, made in the Matter of the Companies Acts, 1862 and 1867, and in the Matter of the Great West Van Lead Mining Company (Limited), with the approbation of the Hon. Mr. Justice MANISTY, acting in vacation for the Master of the Rolls), in One Lot, by MR. ALFRED BAKER (Messrs. BAKER and SONS), the person appointed by the said Judge, at the Auction Mart, Tokenhouse yard, London, on Friday, the 18th of October, 1878, at Two o'clock in the afternoon, the LEASEHOLD RIGHTS and INTERESTS of the said company in certain property known as the
GREAT WEST VAN MINES,
Situate in the parish of Llanbadarn Fawr, in the county of Cardigan, on the high road midway between Llanidloes and Aberystwith; and also the said company's
MACHINERY, PLANT, IMPLEMENTS, and MATERIALS,
And other effects therein and thereon.
Particulars whereof may be had (gratis) of Mr. JOHN JOHNSON WINSER, Solicitor, No. 70, Chancery-lane, London; of Mr. ALFRED BAKER, the Auctioneer, No 11, Queen Victoria-street, London; of Mr. JAMES WADDELL, the Official Liquidator of the said company, No 11, Queen Victoria-street aforesaid; and at the Mart.
H. F. CHURCH, Chief Clerk of Vice Chancellor Sir Charles Hall.
JOHN JOHNSON WINSER, 70, Chancery-lane, London, W.C.,
Solicitor for the said Official Liquidator
Dated the 30th of August, 1878.

LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Sept. 16	West Wye Valley	40	£ 9 10 6	Walker, Parker, and Co.
19	Van	175	10 12 6	ditto
—	ditto	50	10 13 6	Adam Eyton.
—	ditto	100	10 19 0	Nevill, Druce, and Co.
—	ditto	50	10 14 6	St. Helen's Smelt. Co.
—	ditto	25	10 12 6	ditto

BLENDE.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Sept. 19	Van	75	£ 2 18 0	Kenrick and Son.
—	ditto	75	2 19 0	ditto

TIN BARILLA SOLD IN LIVERPOOL.

Date.	Tons.	Price per ton.	Purchasers.
Sept. 18	10¼	£ 2 15 0	Williams, Harvey, & Co.
	9½	26 0 0	Bolitho and Sons.
	5½	22 0 0	R. R. Michell and Co.
	5¼	26 5 0	Redruth Smelting Co.

PERUVIAN TIN ORE SOLD IN LIVERPOOL.

Date.	Tons.	Price per ton.	Purchasers.
Sept. 18	9½	£23 0 0	Bolitho and Sons.
	5¼	22 15 0	Williams, Harvey, & Co.
	5	22 15 0	Daubuz and Co.
	5¼	22 0 0	R. R. Michell and Co.
	5¼	26 5 0	Redruth Smelting Co.

COPPER ORES.

Sampled Sept. 4, and sold at Swansea, Sept. 17.

Mines.	Tons.	Produce.	Price.	Mines.	Tons.	Produce.	Price.
Spanish Ore	134	6½	£3 11 6	Berehaven	48	8½	£4 13 0
ditto	134	6½	2 10 6	ditto	41	10¾	6 2 0
ditto	139	6½	2 11 6	ditto	14	11¼	6 5 0
ditto	139	6½	2 11 6	Tan-y-Bwlch	13	2¾	13 7 0
Caveira	83	5⅞	2 14 0	ditto	23	14¼	7 14 6
ditto	83	5⅞	2 11 0	ditto	15	6¾	2 17 6
ditto	83	5¾	2 11 6	Con. Cement	14	25	13 1 0
ditto	82	5⅞	2 12 6	ditto	8	26	14 1 0
Union	161	8½	4 3 0	Copper Ore	17	14½	8 14 0
ditto	161	8¼	4 1 6	Emily Ore	11	12¼	6 16 0

TOTAL PRODUCE.

Spanish Ore	546	£1399	5 0	Tan-y-Bwlch	51	£ 394	7 0
Caveira Ore	331	864	14 6	Copper Cement	23	281	2 0
Union Ore	322	1324	4 6	Copper Ore	17	147	18 0
Berehaven	103	558	8 0	Emily Ore	11	74	16 0

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount
Copper Miners' Company	295	£ 1,006 10 0
P. Grenfell and Sons	97	311 12 0
Nevill, Druce, and Co.	263	883 15 0
Vivian and Sons	22	281 2 0
Williams, Foster, and Co.	412	1,060 18 0
Charles Lambert and Co.	161	656 1 6
Landore Copper Company	153	1,044 16 6
Total	1403	£ 5,044 15 0

NO SALE on Oct. 1.

TOTALS AND AVERAGES.

	21 cwts.	Produce.	Price.	Per unit.	Standard.
Whole sale	1403	7 9–16	£3 11 10	9s. 5d.	£73 18 2

COPPER ORES.

Sampled Sept. 4, and sold at the Royal Hotel, Truro, Sept. 19.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Devon Great Consols	93	£1 6 6	Marke Valley	63	£2 7 0
ditto	92	1 7 0	ditto	58	2 1 0
ditto	84	1 4 6	ditto	54	3 13 6
ditto	83	1 6 6	ditto	47	2 18 6
ditto	79	1 7 6	ditto	45	3 4 0
ditto	77	1 6 0	ditto	43	2 16 0
ditto	74	1 6 6	ditto	35	2 18 0
ditto	69	1 7 0	ditto	34	2 19 6
ditto	68	5 3 0	Gunnislake (Clitters)	84	3 19 6
ditto	64	3 18 6	ditto	81	3 6 0
ditto	34	1 6 0	ditto	76	3 9 0
ditto	28	4 8 0	ditto	63	3 9 0
South Caradon	72	3 5 6	ditto	70	4 0 6
ditto	70	3 3 6	Glasgow Caradon	68	5 2 6
ditto	59	4 8 0	ditto	62	3 8 0
ditto	50	2 9 6	ditto	81	1 15 6
ditto	49	2 10 6	Hingston Down	60	1 19 6
ditto	48	8 10 6	ditto	73	3 12 6
ditto	47	8 13 6	Bedford United	37	0 10 0
ditto	45	9 16 0	Bawden's Ore	25	4 9 6
			East Caradon	25	0 10 6
			West Maria & Fortescue	18	

TOTAL PRODUCE.

Devon Great Con.	845	£1629	0 6	Hingston Down	141	£ 262 5 6
South Caradon	440	2223	1 0	Bedford United	73	264 13 0
Marke Valley	345	968	15 6	Bawden's Ore	37	18 10 6
Gunnislake (Clit.)	303	1044	13 0	East Caradon	25	111 17 6
Glasgow Caradon	200	841	1 0	West Maria, &c.	18	9 0 6
Average standard		£ 90	1 0	Average produce		63
Average price per ton						£3 0 6
Quantity of ore		2427		Quantity of fine copper 186 tons 0 cwt.		
Amount of money				£7372 16 6	Average produce	7¾

LAST SALE.—Average standard £86 2 0 | Average produce 6½
Standard of corresponding sale last month, £ 91 0 0—Produce, 6½

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Vivian and Sons	576	£2007 17 0
Grenfell and Sons	2 9	103 11 0
Nevill, Druce, and Co.	674	1467 6 0
Williams, Foster, and Co.	633¼	2443 8 8
Mason and Elkington	334½	810 14 2
Total	2427	£7372 16 6

NO SALE on Thursday next, Sept. 26.

Copper ores for sale on Thursday week, at Tabb's Hotel, Redruth.—Mines and parcels.—Mellanear 408—West Tolgus 291—East Pool 222—South Crofty 188—West Seton 111—Levant 105—Wheal Owles 100—Great Crinnis and Carlyon Consolidated 83—Wheal Comford 44—North Busy 41—Wheal Basset 29—Carn Brea 33—North Treskerby 22—West Kitkear 21—Penstruthal 15—Pedn-an-dres 2=1678 tons.

In the High Court of Justice—Chancery Division.

IN THE MATTER OF THE BOWERS ALLERTON COLLIERIES (LIMITED), AND IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867.

IN PURSUANCE of an Order of His Lordship, the Master of the Rolls, TENDERS will shortly be INVITED (unless previously disposed of by private contract) for the IMPORTANT LEASEHOLD COLLIERIES, called the BOWERS ALLERTON COLLIERIES (LIMITED), held on lease, of which upwards of 15 years are unexpired, situate in the parishes of Kippax and Swillington, near Leeds, in the county of York, together with the COLLIERY PLANT, AGENTS' and WORKMEN'S HOUSES, and the several wharves and staiths belonging to the company.

Particulars will be shortly ready, and with conditions of sale and forms of tender may be obtained on and after a day which will be fixed by a subsequent advertisement, on application to Messrs. PATTISON, WIGG, and Co., Solicitors, 11, Queen Victoria-street, London; Messrs. LAMBERT, PETCH, and SHAKESPEAR, Solicitors, 8 John street, Bedford row, London; Messrs. SHUM, CROSSMAN, and Co., Solicitors, 3, King's-road, Bedford-row, London: and in the country of Messrs. DIBB and Co., Solicitors, Leeds; of the Official Liquidators, Boar-lane, Leeds; and of Mr. GEORGE ARMSTRONG, Solicitor, Newcastle on-Tyne.

Orders to view can at once be obtained by written application to the Official Liquidators.

In the High Court of Justice—Chancery Division.

FORSTER v. FORSTER.

IMPORTANT AND VALUABLE COLLIERIES AND LIMESTONE QUARRIES FOR SALE.

IN PURSUANCE of an Order of His Lordship the Master of the Rolls, TENDERS are INVITED for the PURCHASE, in One Lot, of the IMPORTANT LEASEHOLD SEASALE COLLIERIES, called EAST HETTON COLLIERY, comprising 2740 acres or thereabouts; and TRIMDON GRANGE COLLIERY, comprising 854 acres or thereabouts; also, the adjacent VALUABLE RAISBY HILL LIMESTONE QUARRIES and LIME WORKS (principally leasehold, but partly freehold); also, a FREEHOLD ESTATE and LANDS, comprising about 144 acres, all situate near Hartlepool, in the county of Durham, together with the COLLIERY PLANT of PITS, ENGINES, engine-houses, locomotives, machinery, railways, screens, stores, materials, live and dead stock, coke ovens, agents' and workmen's houses, workshops, stables, granaries, quarry stock and chattels.

The collieries are in connection with the Hartlepool branch of the North-Eastern Railway Company's system, being respectively within 14 and 10½ miles of the port of Hartlepool, and 16 and 12½ miles of West Hartlepool, and are also in connection with the main line at Ferry-hill, from which they are respectively five and six miles distant, and are thus well situate for sending their produce to the southern markets, to the Tyne, Sunderland, Middlesborough, and Cleveland, or over sea.

The quarries are in full operation, and the limestone is well known in the market, and is now extensively used in some of the largest ironworks in this district and in Cleveland, and is also largely used for chemical purposes, and the proximity of the works to the North-Eastern Railway facilitates the delivery of large quantities at all times with the utmost promptitude and regularity.

Tenders to be sent (in a sealed cover, marked in the corner "Forster v. Forster") to CHARLES BURNEY, Esquire, the Chief Clerk of His Lordship the Master of the Rolls, at his chambers, No. 10, Chancery-lane, London, on or before the 31st day of October, 1878.

Particulars, plans, conditions of sale, and forms of tender, may be obtained on application to Messrs. TRINDERS and CURTIS HAYWARD, Solicitors, 4, Bishopsgate-street Within, E.C.; T. W. DENBY, Esq., 8, Frederick's-place, Old Jewry, E.C.; J. ANDERSON ROSE, Esq., 11, Salisbury-street, Strand, W.C.; G. B. FORSTER, Esq., Backworth, Newcastle-on Tyne; W. O. WOOD, Esq. (the Viewer), East Hetton Colliery, Coxhoe, County Durham; MATTHEW FORSTER, Esq. (the Receiver), 1, Doctor Johnson's-buildings, Temple, E.C.; and R. F. MATTHEWS, Esq., Boston Carew, West Hartlepool.

Orders to view can be obtained by written application to Messrs. TRINDERS and CURTIS HAYWARD, or G. B. FORSTER, Esq.

TO CAPITALISTS.

FOR SALE, a SILVER-LEAD MINE, over eight square miles in extent, averaging for nine years consecutively a produce of nearly 500 tons of lead ore (produced in 1877, 575 tons), complete with new pumping machinery, also with mechanical dressing floors, laboratory, offices, &c., &c. Large reserves, shallow depth, cheap labour, and materials. Good markets. Rights in perpetuity. Light dues (nominally 1-50th only). Good situation. Easy price and terms.

Address, "Alpha," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

ON SALE,—108 yards 15 inch diameter PUMPS, with delivery pipes. Bucket, door pieces, working barrels, windbores, slide pipes and nozzle, two pumping beams, two rocking legs, spur wheels, &c., making a complete set, and which have only been in use twelve months.

Apply to Mr. L. W. BATES, Rother Vale Collieries (Limited), Fence, near Rotherham.

ON SALE.—20 end and 5 side TIP WAGONS, 4 ft. 8½ in. gauge, in good working condition.

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ON SALE,—ONE 6 feet diameter SCHIELE'S PATENT BLOWING and EXHAUSTING FAN, with one 9 in. diameter cylinder, horizontal steam engine, with pedestal plates, &c., complete, in excellent condition.

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TO LET, ELIGIBLE AND SPACIOUS OFFICES (suitable for Insurance, Office, or Bank), consisting of First and Ground Floors and Basement; also Office Fittings ELEGANT FURNITURE TO BE SOLD BY VALUATION. 33, NEW BRIDGE STREET, BLACKFRIARS, E.C.

For terms, apply to Messrs. LEAROYD and Co., Solicitors, Albion Chambers, opposite Moorgate-street Station.

On view between Twelve and Four.

TO LET, EXTENSIVE BUSINESS PREMISES, suitable for CHANDELIER MANUFACTURERS, HARDWARE, IRON MERCHANTS, and others, containing Basement and Four Stories, each about 25 feet by 21 feet, situate at the corner of COW CROSS STREET, SMITHFIELD, close to the Farringdon-street Station. Rent, £250 per annum.

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P.S.—Key at Mr. Robinson's, Printer, 36 and 37, Cow Cross-street.

THE "MIDLAND" HORIZONTAL ENGINES, new splendid design, and best construction.

4-horse power ENGINE, 6½-inch cylinder 10-inch stroke, with throttle valve, fly wheel (turned face), governor, feed pump, and double crank, with two bearings to shaft, which is made to take pulley or fly wheel on either right or left side. Price, £25.

Other sizes proportionately cheap.

ALEXANDER SMITH,
ENGINEER, DUDLEY.

18 H.P. PORTABLE STEAM ENGINE with link motion reversing gear, ready for delivery; also gear to wind and pump.

A 9 h.p. VERTICAL STEAM ENGINE, with link motion, reversing gear (winding drum if required).

A 6-ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER, with carriage and travelling wheels.

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HINGSTON DOWN, IN THE COUNTY OF CORNWALL.

IMPORTANT SALE of a VERY VALUABLE FIRE-BRICK and FIRE-CLAY WORKS, with immediate possession, within 2½ miles of Calstock and the navigable River Tamar, and ¼ mile from the siding of the Cornwall Minerals Railways, and 7 miles from Tavistock.

MESSRS. ANDREW AND SON are instructed to OFFER FOR SALE, BY PUBLIC AUCTION, at the Bedford Hotel, Tavistock, on Wednesday, September 25, at Three P.M., subject to such conditions as will then be produced, and can be seen at the offices of the undermentioned solicitors seven days previous to the sale, in One or more Lots (as may be determined on at the time of sale), ALL that VERY VALUABLE PROPERTY, with ENGINES and PLANT, now worked and known as the

CALSTOCK FIRE-BRICK AND FIRE-CLAY WORKS COMPANY (LIMITED),

Extending over 23 acres of land, which is copyhold of the Manor of Calstock.

The whole of the subsoil of the land is a bed of clay of excellent quality. The bricks and tiles manufactured by this company are well known as affording great resistance to frost and heat, and the fire-bricks are stated to be capable of standing a greater heat than the Stourbridge and other well known bricks, and are greatly in demand.

The whole of the kilns, flues, and drying sheds, which are substantially constructed, have been erected with a view of producing first-class bricks and tiles at the smallest possible cost.

The machinery, made especially for these works, and put in place partly by the well-known firm of Nicholls and Williams, Tavistock, is in capital working order, and capable of producing about 20,000 bricks per day; and the manager's house and offices, with weighing machine, render the whole works very complete.

The situation of the property is very favourable for carrying out the manufacture of fire-bricks and tiles, as the distance from the navigable River Tamar is only 2½ miles.

Printed particulars and plans will shortly be published, and can be obtained of the Auctioneers, 5, Courtenay-street, Plymouth; of Messrs. KELLY and WOLFERSTAN, Solicitors, Plymouth; or of Messrs. MAXWELL and WELDON, Solicitors, Dublin.—Dated July 23rd, 1878.

MR. JOHN THOMAS has received instructions TO SELL, at PUBLIC AUCTION, at Tabb's Hotel, Redruth, on Friday, the 27th of September, at Six o'clock:—

450 (500th) SHARES in the WEST GODOLPHIN MINE; and
150 (5000th) SHARES in PENHALLS MINE.

The former is situated in the parish of BREAGE, and the latter in the parish of ST. AGNES, in the county of CORNWALL. They are both very valuable Mines, which a slight rise in the price of tin will restore to their normal dividend state; and as all well-informed authorities agree that we shall soon see a higher quotation for this metal, a first-class opportunity for investment is offered.

JOHN THOMAS,
Auctioneer and Share Broker, Valuer of Mines and Mine Materials, &c.
The Glebe, Redruth, September 18th, 1878.

LEAD, &c., MINES IN MERIONETHSHIRE.

IN LIQUIDATION.

GLAN CLWYD LEAD MINING COMPANY.
(LIMITED).

MESSRS. DEW AND SON WILL SELL, BY AUCTION, at the Owen Glyndwr Hotel, Corwen, on Saturday, the 28th day of September, 1878, at Two o'clock in the afternoon, subject to conditions of sale to be then produced, unless previously disposed of by private treaty, of which notice will be given, the ESTATE and INTEREST of the above company, under an Indenture of Lease (of which about 25 years are unexpired), of and in certain lands, &c., in or under certain lands and premises situate at Clegir Mawr and Bryn Halen, in the parish of Gwyddelwern, in the county of Merioneth, containing in statute measure 247 A. 1 R. and 3 P. or thereabouts.

Together with the MACHINERY, PLANT, and other EFFECTS belonging to the company on the premises, including a 40 ft. WATER-WHEEL, with segment, &c., for working patent self acting jiggers; a BLAKE'S (or Marsden's) STONE BREAKER, and other appliances for carrying on the mine.

The Derwen Station, on the Rhyl, Denbigh, and Corwen Railway, is within two miles of the mines.

Authority for examining the property can be gotten, an inspection of the lease had, and a print of the particulars and conditions of sale, with any further information, obtained from the Auctioneers, at Bangor; the Liquidator, Mr. C. E. WILSON, 6, Stonewall-terrace, Cheetham Hill; or Messrs. BRETT and CRAVEN, Solicitors, 3, Kennedy-street, Manchester.

SOUTH WALES, CARDIGAN.

IMPORTANT MINING PROPERTY, with PLANT and MACHINERY.

IN THE HIGH COURT OF JUSTICE, CHANCERY DIVISION.—*RE* THE GREAT WEST VAN LEAD MINING COMPANY (LIMITED).

MESSRS. BAKER AND SONS WILL SELL, BY AUCTION, at the Mart, Tokenhouse-yard, Bank of England, on Friday, October 18, in One Lot, by direction of His Honor the Master of the Rolls, all that valuable PROPERTY known as the

GREAT WEST VAN LEAD MINE,

Situate in the parish of Llanbadarn Fawr, in the county of Cardigan, on the high-road, midway between Llanidloes and Aberystwith. It contains a vast amount of lead ore, with a surface area of 720 acres, and might, at a comparatively small outlay, be rendered a most lucrative speculation.

The sale will include all the valuable PUMPING and other MACHINERY, together with the expensive PLANT and IMPLEMENTS appertaining to the mine, the whole being in excellent working order.

Particulars and conditions of sale may be had of JAMES WADDELL, Esq., Public Accountant (the Official Liquidator), 11, Queen Victoria-street, E.C; of J. JOHNSON WINSER, Esq., Solicitor, 70, Chancery-lane, W.C.; of Mr. W. BRAMWELL, at the Mine; and of the Auctioneers, 11, Queen Victoria-street, E.C.

TORQUAY MAIN DRAINAGE.

MR. GEORGE HODGE has received instructions from the Torquay Local Board to OFFER FOR SALE, BY PUBLIC AUCTION, on Tuesday, Wednesday, and Thursday, October 1st, 2nd, and 3rd, 1878, and following day (if necessary),

THE WHOLE OF THE PLANT

USED IN CONSTRUCTING THE ABOVE WORKS, AT A COST OF £70,000,

COMPRISING—

Two sets gin harness; 1 timber carriage; 1 2½ ton Chaplin's patent lifting and swivelling STEAM CRANE, mounted on cast iron bed and railway wheels, 4 ft. 8½ in. guage; ONE 4-horse power STEAM WINDING and PUMPING ENGINE, complete, on travelling wheels; ONE double-acting STEAM PUMP, 5 in. diameter steam cylinder, 4 in. diameter water cylinder, and 10 in. stroke; ONE vertical STEAM BOILER, 8 ft. 6 in high, and 3 ft. 4 in. in diameter; ONE ditto, 7 ft. 3 in. high, and 3 ft. in diameter; ONE egg ended BOILER, 15 ft. long, and 3 ft. in diameter; ONE portable MORTAR MILL, pan 5 ft. diameter, with BOILER and STEAM ENGINE, combined, mounted on wheels; ONE MORTAR MILL, pan 7 ft. in diameter, and the necessary driving gear; TWO FORCE PUMPS, barrels 4 in. diameter, and 4 ft. stroke, with cast iron bobs, wrought iron rods, guides, &c., complete; ONE vertical CLAY PUGGING MILL, 4 ft. high, and 2 ft. in diameter; ONE CEMENT TESTING MACHINE; 10 tons wrought iron bridge rails, 40 lbs. per yard; 4 tons ditto, 38 lbs. per yard; 40 tons ditto, 22 lbs. per yard; 9 tons ditto, 17 lbs. per yard; 9 tons cast iron pipe, 18 in. in diameter; 9½ tons ditto, 3 in. in diameter; four contractors' side tip railway wagons, 4 ft. 8½ in. gauge; various tunnel wagons, trolleys, skips, blow fans, wooden sleepers, &c.; engine fitters' and smiths' tools, including anvils, vices, portable forges, &c.; 1 crab; various chains, wheelbarrows, 1 theodolite.

ROCK BORING MACHINERY.

Four 2½ in. cylinder improved patent Ingersoll self-feeding Rock Boring Machines; 1 tripod stand, with telescope legs and weights; 3 tunnel columns, each 3 in. in diameter, 7 ft. long; 1 ditto, 3½ in. in diameter, and 6 ft. 6 in. long, with lengthening screw, complete; 3 steel clamps for 3 in. columns, fitted with bolts and nuts; 1 ditto ditto for 3½ in. column; 4 50 ft. lengths of india-rubber steam hose, covered with tarred yarn, and fitted with gun metal couplings, complete.

ONE PATENT STURGEON'S HIGH SPEED AIR COMPRESSOR,

With 1 steam and 1 air cylinder, each 6½ in. diameter, and 9 ft. stroke, mounted on cast iron air receiver, complete; 1 Sturgeon's patent high speed Air Compressor, having 2 steam cylinders, 6½ in. in diameter, and 1 air cylinder, 8½ in. in diameter, and 9 in. stroke, mounted on cast iron air receiver, complete; 15 18 in. water pipes. A QUANTITY OF PITCH PINE PLANK,

of various descriptions; pine baulk, sundry timber, 700 7 ft. sleepers, 1944 planks, 4 ft. by 2 ft.; large quantity of ribs, varying from 6 ft. to 7 ft., for concrete and bricks; sundry drums for pits, 5 ft. diameter; ditto sewer drums, from 2 ft. to 7 ft.; quantity of water casks, large quantity of block leggings and legs for brickwork; sheer legs; pile driving machine; quantity of well seasoned ash plank, ranging from 2, 2½, 3, 3½ in.; quantity of oak spokes, ash pick and hammer shafts; 1 in. match boarding; deals, 1½ in. and 2 in.; quartering, 2 by 3, and 3 by 4; roofing felt, sheer legs, ladders, scrap iron, cast iron, jumpers, bars, steel striking hammers, navvy shovels, spades, pickaxes, gas tongues and clips, cast iron bearings, brass ditto, various spanners, quantity steel and iron striking hammers, sheet zinc, rope, fuse, dynamite, bolts and nuts, tunter dogs, full set taps and dies, set ditto for pipes, nails, files, washers, wheels, oil cans, oil in cask, lathes, pulley wheels, double, single and treble blocks, switch blocks, wire sleves, wheel boxes, bar and hoop iron, rod ditto, iron and zinc buckets, wagon grease, wheelbarrows, Roll's jack, pumps, 5 in and 6 in., with slides and strainers, tar paulins, sheds, workshops, fencing, tubing, steel bar, octagon, ¾ in. and 1 in.; box of candles, Salter's balance up to 336 lbs., steel and iron rope, large water tank, blowers and fittings, box and stock locks, &c.

Sale to commence on Tuesday at Eleven o'clock prompt, at the New Sea Road, Meadfoot, and on Wednesday, and following days, at the Torbay Road, at the same hour.

Catalogues 1s. each, not returnable, may be had of the Auctioneer six days prior to the sale.

On view the Saturday and Monday prior to the sale.

Dated 4a, Strand, Torquay, September 10th, 1878.

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FOR SALE, A FIRST-CLASS SLATE QUARRY.

FOR SALE, the WHOLE or a PORTION of a FIRST-CLASS SLATE QUARRY, in DEVONSHIRE (area about 13 acres). The slate pronounced by competent judges to be equal to Delabole. Steam machinery, with all appliances and plant for working the quarry, are on the ground.

This quarry has been surveyed, drawings prepared, and most favourably reported upon by one of the first engineers of London connected with the Welsh quarries. The whole affords a splendid opportunity to investors having capital at their disposal, and the strictest investigation permitted.

Apply to F. R. STANBURY, Solicitor, 15, Princess-square, Plymouth.

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CORNISH PUMPING, WINDING, AND STAMPING ENGINES; STEAM CAPSTANS AND CRUSHERS; WATER-WHEELS; PUMP-WORK; SHOVELS, AND HAMMERED IRON FORGINGS OF EVERY DESCRIPTION.

Also of SPUR, MORTICE, MITRE, BEVIL, and other WHEELS, of any diameter up to 12 feet, made by Scott's Patent Moulding Machine, without the aid of patterns, and with an accuracy unattainable by any other means.

MACHINERY or FOREIGN MINES carefully prepared.

SECONDHAND MINING MACHINERY, in good conditon, always on sale, at moderate prices.

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MANUFACTURE RAILWAY CARRIAGES and WAGONS of EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order maintained by contract. MANUFACTURERS also of IRONWORK, WHEELS, and AXLES.

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ONE-HALF INTEREST in this very VALUABLE PROPERTY, situated in ASHE COUNTY, NORTH CAROLINA, U.S. AMERICA, can be purchased on the most reasonable terms. One hundred and sixty acres well wooded and watered land: country settled by industrious farmers and mechanics; labour cheap; 17 miles from the celebrated "Ore Knob Mine," where 2 tons of ingot copper is made per day; good roads, stores, churches, and schools in the vicinity; postal facilities at the mine.

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Has 24 years' experience in Mining and Smelting, and 10 years' experience in American Business and Law, offers his services at moderate charges for Reporting on Mining and other Property in any of the above-named States or Territories; gives correct, safe, and responsible advice as to securing full titles and possession; and, as to best mode of utilising the property, will assist in settling existing difficulties by compromise, and in disposing of developed mining property when held at real value; offers his assistance for securing undeveloped mining properties at home prices. As to care taken in reporting, reference is made to the *Mining Journal* Supplement, April 1, 1876, containing report on property of the Maxwell Land Grant and Railway Company; as to technical standing, to the prominent men of the trade—compare *Mining Journal* of Aug. 30 and Nov. 31, 1872, and *New York Engineer and Mining Journal*, Feb. 28, 1874.

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FOR LOCOMOTIVE AND MARINE BOILERS

EITHER

MUNTZ'S OR GREEN'S PROCESS

MUNTZ'S METAL COMPANY (LIMITED),

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THE

TRELLYNIA LEAD MINING CO.

(LIMITED),

HALKIN MOUNTAIN, FLINTSHIRE.

Capital £10,000, in 2000 Shares of £5 each, fully paid.

MESSRS. THOMAS BROTHERS, Strand Chambers, Strand Street, Liverpool, have much satisfaction in being able to offer for public subscription a limited number of shares in this company, at par, and believe that a careful perusal of the following particulars will justify the feeling, and convince the reader that it would be difficult to find a more favourable medium for the investment of a moderate amount of capital.

Trellynia Mine lies in the centre of a highly mineralised district, and is surrounded by well known and dividend paying mines. Being only 1½ mile from Nannerch station on the Mold and Denbigh Railway it is very accessible for investors who like to visit the properties in which they put their money.

Considerable quantities of lead ore were raised by former workers from a series of shallow pits sunk on the outcrop of the various lodes; the present company has cleared up and extended the old workings and sunk a new shaft to a depth of 60 yards, in the carrying out of which work many tons of lead ore (as much as 40 tons in a month) have been brought to surface and sold.

Trellynia is the focus or concentrating point of a number of well known lodes running through two of the adjacent mines, and as such junctions are invariably very productive, it is only reasonable to expect a large body of ore will be found when the new works reach the point of intersection of the lodes.

The bottom of the mine being more productive than the shallow levels and pits, and there being many indications of increased richness as further depth is attained, it has been decided to sink the shaft below the 60 yard level and drive in the direction of the junction of lodes; to do this advantageously improved winding apparatus is required and to provide it the shares now offered have been issued.

Trellynia is not a new or purely speculative mine, nor is it an abandoned mine, the working of which can only be resumed at great cost; but it is a fairly remunerative undertaking, needing only a little further capital to make it a great success.

During many years experience in mines, mining companies, and other industrial ventures, Messrs. THOMAS BROTHERS scarcely remember a more favourable opportunity for a small, permanent, and profitable investment, and, therefore, confidently recommend it to your serious consideration.

Applications for shares should be made to us without delay, from whom also any further information can be obtained.

THOMAS BROTHERS,

STRAND CHAMBERS, 8, STRAND STREET, LIVERPOOL.

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ARE NOW MAKING A GREATLY IMPROVED CLASS OF **TANK LOCOMOTIVE,** EITHER ON FOUR WHEELS OR SIX, OF VARIOUS GAUGES,

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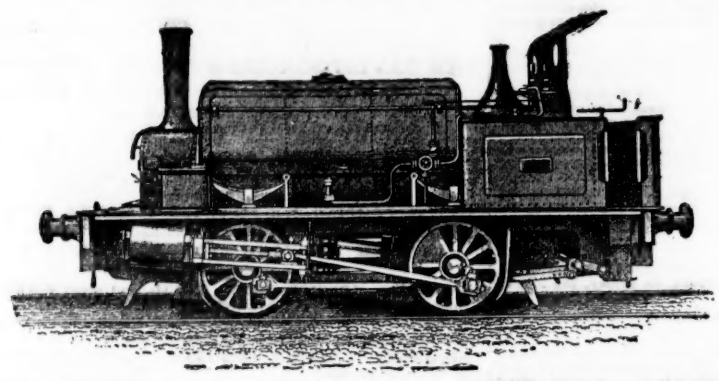

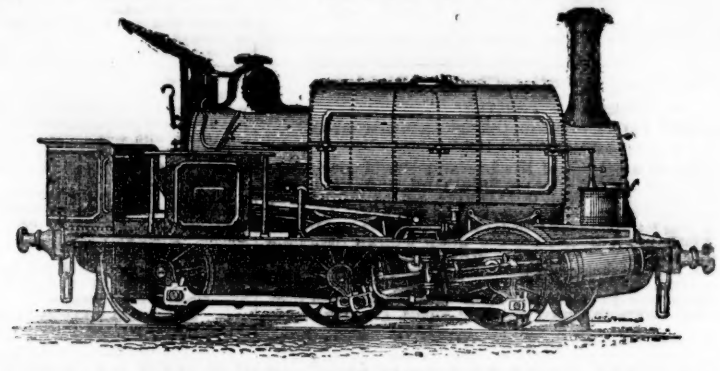

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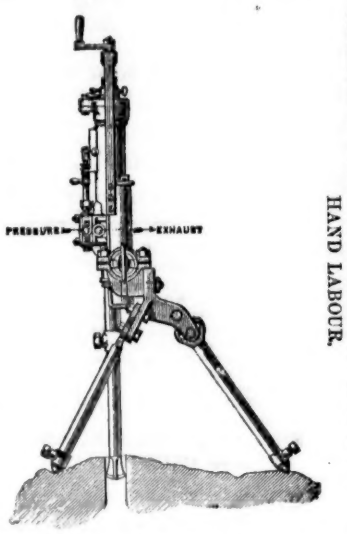

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FOR COLLIERIES, IRONWORKS, &c.
SUITABLE FOR PIT BANKS, ENGINE HOUSES, &c., &c.

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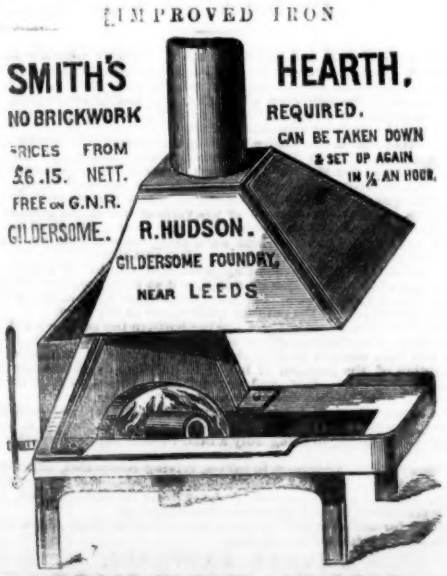
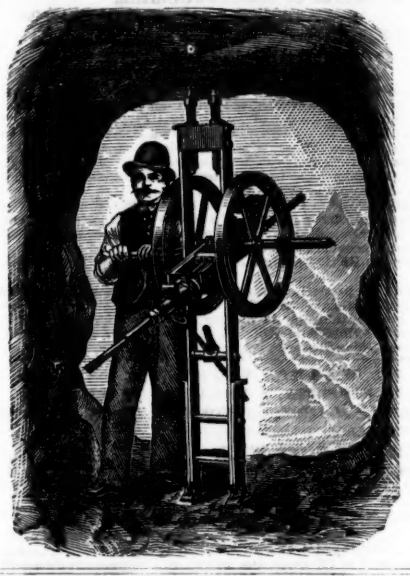


GREAT SAVING IN ROOM



JORDAN'S
HAND-POWER ROCK DRILL.

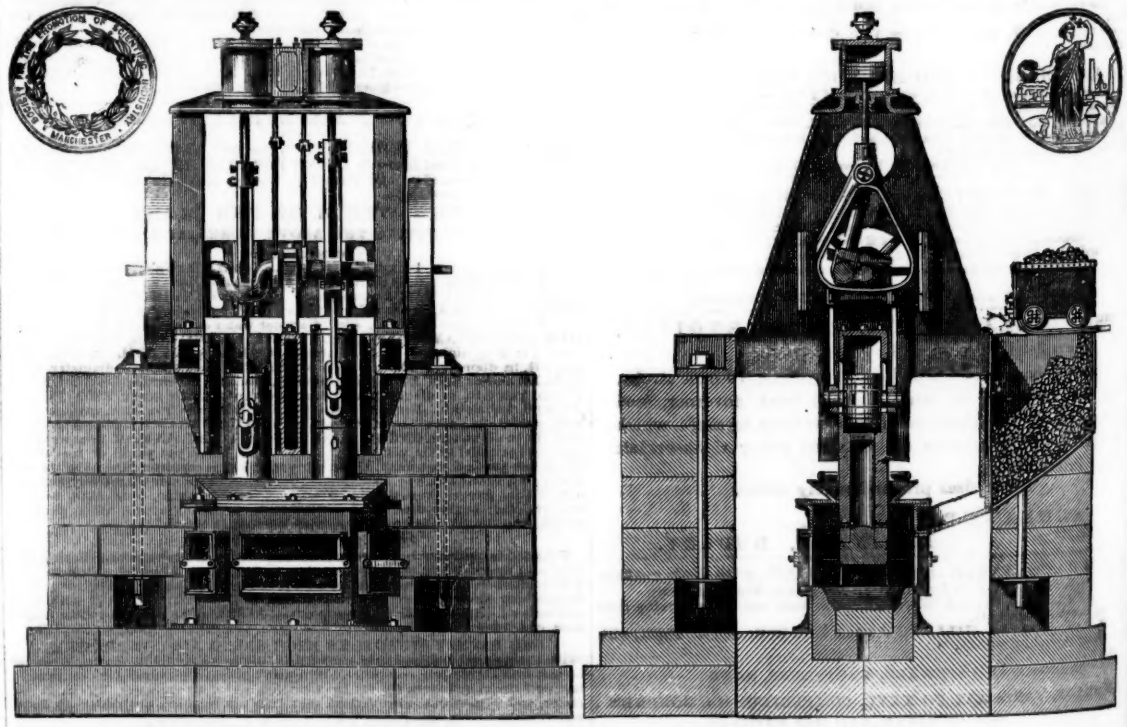
RATE OF DRILLING THREE TO FOUR TIMES AS FAST AS HAND LABOUR.

IMPORTANT TESTIMONIALS FROM MINES AND QUARRIES ON APPLICATION.

FIRST PRIZE MEDAL,
ROYAL CORNWALL POLYTECHNIC SOCIETY, 1878.

T. B. JORDAN, SON, & MEIHE,
63, QUEEN VICTORIA STREET, LONDON, E.C.
21 AND 22, LINDENSTRASSE, BERLIN.

SPECIALITIES:—
PATENT PNEUMATIC HAND-POWER STAMP, CRUSHING ROLLS, CALIFORNIA STAMPS, &c.
PATENT PROSPECTING AND GENERAL MINING PLANT.



SHOLL'S PATENT DIRECT-ACTING
PNEUMATIC STAMPERS,

For Pulverising Tin and Lead Ores, Gold Quartz, &c.,
SOLE MAKERS FOR CORNWALL,

N. HOLMAN AND SONS,
ST. JUST FOUNDRY, NEAR PENZANCE, CORNWALL.

All objectionable features of "wear and tear" common to the original and existing Pneumatic Stamps (driven by belts) are removed in this patent, and leather glands and stuffing boxes entirely dispensed with, the pneumatic piston being reciprocated into the compressing chambers by direct-action from without. These double machines are guaranteed to be of the capacity of 36 ordinary heads of cam and lifter stamps, and engineers will at once see that, inasmuch as the power is directly applied to its work (without the medium of belts and other gearing), the minimum consumption of coal (all other conditions being equal) must be the result.

The COST OF THESE MACHINES (including boiler) is about ONE-THIRD OF THE ORIGINAL CAM AND LIFTER STAMPS, to do the same work.

ROTARY STAMPERS SUPPLIED ON THE SAME PRINCIPLE, WITHOUT STUFFING BOXES OR GLANDS, WHERE RUNNING GEAR EXISTS, OR WITH HORIZONTAL CONDENSING ENGINES AND BELTS TO DRIVE THEM, IF PREFERRED.

Also, SOLE MAKERS OF STEPHENS' PATENT PULVERISER.
MINING AND OTHER MACHINERY CONSTANTLY ON SALE,
NEW AND SECOND-HAND.

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WEBB and Co., Llanberis, Caernarvon.
J. T. EACHUS, Holywell.
JOHNSON and Co., Tower-street, Dudley.
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CHARLES CUNNINGHAM, 81, Murraygate, Dundee.
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THE SAFEST, CHEAPEST, AND STRONGEST OF ALL EXPLOSIVES.

RECOMMENDED TO MINERS, PIT SINKERS, QUARRYMEN AND CONTRACTORS
AS THE MOST EFFICIENT AND ECONOMICAL BLASTING AGENT EVER INVENTED.

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THE BEST EXPLOSIVE KNOWN FOR EVERY KIND OF QUARRYING, MINING, TUNNELLING, AND SUBAQUEOUS OPERATIONS.
UNRIVALLED FOR STRENGTH, SAFETY, AND FREEDOM FROM GASES.
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ELECTRIC FUSES, FIRING MACHINES, CABLES, INSULATORS, &c.
DETONATORS. DOUBLE, TREBLE, QUINTUPLE, SIXTUPLE, &c.
DYNAMITE. STRONGEST QUALITY. EXPORT ORDERS EXECUTED.

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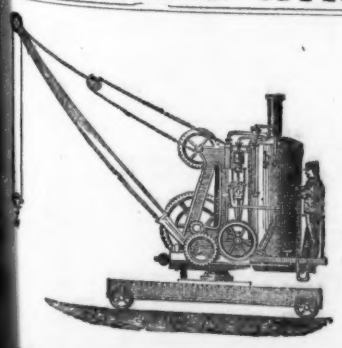
Engineers, Iron and Brass Founders, &c.,
MAKERS OF EVERY DESCRIPTION OF
MINING MACHINERY, SHOVELS, GEARWORK, PUMPING, WINDING, AND STAMPING ENGINES.
ALSO OF
BLAKE'S STONE BREAKERS.
SOLE MAKERS OF
BORLASE'S PATENT ORE-DRESSING MACHINES AND PULVERISERS.
ESTIMATES GIVEN UPON INDENTS AND SPECIFICATIONS.
ILLUSTRATED CATALOGUES POST FREE ON APPLICATION.
LONDON OFFICE: 85, GRACECHURCH STREET, E.C.



CHAPLIN'S PATENT STEAM CRANES,

Portable or Fixed, for Wharf or Rail, to hoist 15 cwts. to 30 tons.
Geared to hoist or lower, and turn entirely round in either direction, by the steam power, separately or simultaneously, as required.

STEAM and HAND DERRICK and OVERHEAD TRAVELLING CRANES.
HOISTING AND PUMPING ENGINES.
Improved Steam Excavator, or "Navvy."
CONTRACTORS' LOCOMOTIVES, ROAD ROLLERS,
And other of our CHAPLIN'S VERTICAL ENGINES and BOILERS, always in stock or in progress.
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BRITISH, PRUSSIAN, & SAXON GOVERNMENTS.

SUPERIOR Air-Compressors, Coal-Cutters, Pumps, and all Mining Machinery.

Secondhand ROCK DRILLS
BRYDON AND DAVIDSON'S
make £25 each new £32

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WIRE AND HEMP ROPES
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Charcoal and Steel Wire Ropes (Flat and Round), of best lected Charcoal and Steel Wire.
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Ditto Cordage ditto ditto
Manilla Rope, White and Tarred.
Flax Spun Yarn and Dressed Flax, for Packing.
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Fine Dressed Petersburg and Italian Hemp, &c., &c.
Ships Rigging fitted to order. Estimates and special quotations supplied on application to

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PUMP LEATHER
WATERPROOF

By a special method of preparation, this leather is made solid, perfectly close in texture, and impermeable to water; it has, therefore, all the qualifications essential for pump buckets, and is the most durable material of which they can be made. It may be had of all dealers in leather, and of—

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Prize Medals, 1851, 1855, 1862, for
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MAPS OF THE MINES, AND OF UTAH TERRITORY.

FROISETH'S NEW AND REVISED MAP FOR 1875.—Size 40 by 56 inches, scale 8 miles to the inch. Handsomely engraved, coloured in counties, showing the Towns, Settlements, Rivers, Lakes, Railroads, Mining Districts, &c., throughout the Territory, and all the Government Surveys to date. Mounted on cloth, £2; half-mounted, £1 12s.; pocket form, £1.

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TRUBNER and Co., 57 and 59, Ludgate Hill, London; or
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LOW PRICES OF METALS.—In consequence of the present miserably LOW PRICES OF METALS, I have REDUCED the PRICES of my MINING MAPS. The "MAP OF CAMBORNE, ILLOGAN, REDRUTH, AND GWENNAP," published at 21s., I will send per book post (free) on receipt of 5s. 3d. "SAINT AGNES DISTRICT," same price, R. SYMONS, 11, PARADE, TRURO.

THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last nd.
4000	Brookwood, c, Buckfastleigh	1 16 0	1	¾ 1	3 16 0	0 2 0	Nov. 1875
2000	Bryn Alyn,* l, Denbigh	10 0 0	—		0 7 0	0 7 0	Jan. 1877
10000	Caron, l, Cardigan*	2 0 0	2½	2 2½	0 2 0	0 2 0	July 1878
1000	Carn Brea, c, t, Illogan†§	53 7 6	40	35 40	308 0 0	1 0 0	Feb. 1874
400	Cashwell, l, Cumberland*	2 10 0	—		1 9 6	0 2 0	Aug. 1876
2450	Cook's Kitchen, t, Illogan†§	24 14 9	⅞	⅞ 1⅛	11 17 0	0 7 6	Jan. 1875
10240	Devon Gt. Consols, c, Tavistock†*	1 0 0	2½	2 2½	116 15 0	0 5 0	July 1877
4296	Dolcoath, c, t, Camborne	10 14 10	24	23 25	112 16 3	0 5 0	Aug. 1878
5000	East Black Craig,* l, Scotland	5 0 0	—		0 10 0	0 10 0	Feb. 1877
[illegible]	East Darren, l, Cardiganshire	32 0 0	—		235 10 0	1 0 0	Aug. 1876
6400	East Pool, t, c, Illogan	0 9 9	8¼	8¼ 9½	15 11 9	0 2 6	Aug. 1878
40000	Glasgow Cara., c* [30,000 £1 p., 10,000 15s. p.]		1½	¾ 1¼	0 13 10	0 0 6	Aug 1878
7500	Gorsedd and Merllyn Cons., l, Flint	2 10 0	4½	3½ 4½	0 5 0	0 5 0	Aug. 1877
15000	Great Laxey, l, Isle of Man*	4 0 0	18½	18 18½	23 19 0	0 8 0	July 1878
615	Gt. Retallack, l, bl, Perranzabuloe	5 18 6	—		0 1 6	0 1 6	May 1876
6400	Green Hurth, l, Durham*	0 6 0	1	⅞ 1	1 18 0	0 3 0	Mar. 1878
10000	Grogwinion, l, Cardigan*	2 0 0	3	2½ 3	0 14 10	0 0 10	Aug. 1878
9830	Gunnislake (Clitters'), t, c	5 5 0	2¾	2½ 2¾	0 13 9	0 1 0	Oct. 1876
60000	Holmbush, a, c, s-l, Callington*	1 0 0	—		0 4 6	0 0 6	Sept. 187-
2800	Isle of Man, l, Isle of Man*†	25 0 0	—		82 5 0	0 10 0	Feb. 1876
20000	Leadhills,* l, Lanarkshire	6 0 0	2½	2 2½	0 15 0	0 3 0	Mar. 1878
[illegible]00	Lisburne, l, Cardiganshire	18 15 0	60	55 60	586 10 0	1 0 0	May 1878
14000	Llanidloes,* l, Montgomery	3 0 0	1¼	¾ 1¼	0 9 0	0 4 6	Nov. 1876
9000	Marke Valley, c, Linkinhorne	5 3 6	¾	⅜ ⅝	7 15 0	0 2 0	Jan. 1876
10000	Mellanear Copper, Hayle*	2 0 0	4	3¾ 4¼	0 5 0	0 3 0	July 1878
[illegible]000	Minera Mining Co., l, Wrexham*	5 0 0	10	8 10	67 15 8	0 2 6	Sept. 1878
20000	Mining Co. of Ireland, cl, c, l*	7 0 0	—		23 17 6	0 2 6	Jan. 1878
444	North Busy, c, Chacewater	3 9 6	—		1 10 0	1 0 0	July 1877
10289	North Hendre, l, Wales	2 10 0	—		2 7 6	0 5 0	June 1878
30000	Panty Mwyn,* l, Mold (8794 iss.)	2 0 0	—		0 3 0	0 2 0	Aug 187-
6000	Pean an-drea Con., t, Redruth	0 8 6	—		0 9 0	0 9 0	June 1877
5000	Penhalls, t, St. Agnes	3 3 6	1	¾ 1	3 13 6	0 2 0	July 1875
6000	Pennant, l, bar, North Wales*	5 0 0	5	4 5	0 10 0	0 5 0	Mar. 1878
45793	Penstruthal,* t, c, Gwennap	2 0 0	¾	½ ¾	0 2 8	0 0 8	Nov. 187-
18000	Prince Patrick,* s-l, Holywell	1 0 0	1¾	1½ 1¾	0 14 0	0 1 3	Jan. 1876
10000	Red Rock,* l, Cardigan	2 0 0	2½	2 2½	0 4 0	0 2 0	Jan. 1878
12000	Roman Gravels, l, Salop*	7 10 0	7¾	7½ 7¾	7 15 0	0 5 0	Mar. 187-
512	South Caradon, c, St. Cleer	1 5 0	60	40 60	743 10 0	1 0 0	Sept. 1878
6123	South Condurrow, t, c, Camborne‡	6 5 6	10½	10½ 11	4 1 0	0 8 0	Aug. 1878
12000	St. Harmon,* l, Montgom	3 0 0	3½	2½ 3	0 12 0	0 3 0	July 1878
1[illegible]000	So. Pr. Patrick,* s-l (8000 sh. issued)	1 0 0	—		0 7 0	0 1 0	Oct 187-
4500	South Wh. Frances, c, Illogan†	7 12 4	4¼	4¼ 5¼	37 5 0	0 5 0	Sept. 1878
12000	Tankerville, l, Salop*	6 0 0	3½	2½ 3	4 17 0	0 5 0	Dec. 1876
6000	Tincroft, c, t, Pool, Illogan†§	11 10 0	6	6½ 7½	50 8 6	0 5 0	May 1877
15000	Van, l, Llanidloes*	4 5 0	18½	17 18	23 0 6	0 5 0	July 1878
8000	W. Chiverton, l, Perranzabuloe†	12 10 0	6	5 6	55 10 0	0 10 0	Feb. 1878
1783	West Poldice, St. Day	10 0 0	—		1 19 0	0 4 0	July 1876
512	West Tolgus, c, Redruth	95 10 0	52	50 52½	31 0 0	1 5 0	Sept. 1878
2048	West Wheal Frances, t, Illogan	28 8 9	2¾	1½ 2	3 12 6	0 5 0	Oct. 1872
600	West Wheal Seton, c, Camborne†	47 0 0	9	7 8	446 0 0	0 15 0	Apr. 1878
12000	West WyeValley,* l, Montgom	3 0 0	3	2¼ 2¾	0 12 0	0 3 0	Nov. 1877
1024	Wh. Eliza Consols t, St. Austell	18 0 0	—		19 10 0	1 10 0	Aug. 1878
2048	Wheal Jane, t, Kea	2 13 10	¾	½ ¾	8 5 0	0 5 0	July 1875
4295	Wheal Kitty, t, St. Agnes	5 4 6	2	1¼ 1¾	11 19 6	0 2 6	Dec. 1874
25000	Wh. Newton, a, c, s, t, Calstock*	1 0 0	—		0 8 6	0 4 0	Sept. 18.7
80	Wheal Owles, t, St. Just§	161 5 0	27	26 27	522 10 0	4 0 0	Aug 1872
3000	Wheal Peevor, t, Redruth	7 11 0	6½	6¼ 6½	0 10 0	0 5 0	Aug. 1878
5000	Wheal Prussia, t, Redruth	0 5 0	—		0 4 0	0 1 0	July 18.7
10000	Wye Valley, l, Montgomery*	3 0 0	2	2 2½	0 10 6	0 4 6	Oct. 1876

FOREIGN DIVIDEND MINES.

Shares	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last nd.
35500	Alamillos, l, Spain*†	2 0 0	1¼	1 1½	1 19 3	0 1 0	April 1878
30000	Almada and Tirito Consol., s*†	1 0 0	½	¼ ½	0 6 3	0 1 0	May 1876
20000	Australian, c, South Australia†	7 7 6	1½	1¼ 1¾	1 1 6	0 2 0	July 18.8
10000	Battle Mountain,* c, (6240 part pd.)	5 0 0	—		0 10 0	0 10 0	Nov. 1872
15000	Birdseye Creek, g, California*	4 0 0	⅞	⅝ ⅞	0 14 0	0 2 6	June 187-
20000	Cape Copper Mining,*† So. Africa	7 0 0	30½	30 31	32 5 0	0 17 6	Sept. 1878
34433	Cedar Creek, g, California*	5 0 0	⅜	¼ ⅜	0 5 0	0 2 6	June 187-
35000	Cesena Sul. Co., Romanga, Italy*	10 0 0	—		0 18 0	0 2 0	Aug. 1878
15000	Chicago, s, Utah*	10 0 0	1½	¾ 1¼	2 8 0	0 4 0	Nov. 1876
65000	Colorado United, s-l, Colorado*†	5 0 0	4½	3½ 4	0 13 6	0 4 0	Jan. 187-
10000	Copiapo, c, Chili* (£20 shares)	16 15 0	—		7 11 5	0 3 0	May 1877
100000	Don Pedro North del Rey*†	0 16 0	⅝	½ ⅝	2 5 9	0 2 0	Mar. 187-
23500	Eberhardt & Aurora, s, Nevada*†	10 0 0	4½	4¼ 4¾	1 8 0	0 3 0	Dec. 1877
70000	English & Australian, c† S. Aust.	2 10 0	1¼	1 1¼	2 15 9	0 1 0	Mar. 1877
30000	Flagstaff, s, Utah*	10 0 0	⅝	⅜ ⅝	4 2 0	0 5 0	July 1875
25000	Fortuna, l, Spain*†	2 0 0	5	4 4½	6 19 10	0 5 0	April 1878
55000	Frontino & Bolivia, g, New Gran.*†	2 0 0	2⅞	2½ 2⅞	0 2 6	0 1 6	Sept. 1878
30000	Gold Run, hyd.	1 0 0	—		0 2 4	0 0 4	Oct. 187-
68000	Kapunda Mining Co. Australia†	1 3 0	—		0 2 4	0 0 6	June 187-
20000	Last Chance, s,* Utah	5 0 0	1	¾ 1	0 14 0	0 2 0	July 187-
45000	Linares, l, Spain*†	3 0 0	4½	4 4½	17 7 10	0 5 0	April 1878
65000	London and California, g*†	2 0 0	½	¼ ½	0 1 0	0 1 0	May 1878
7837	Lusitanian, Portugal*† (£5 sh.)	3 10 0	—		1 11 6	0 1 6	Mar. 187-
5000	Mamm Copperopolis of Utah, c, s	10 0 0	—		0 5 0	0 5 0	Dec. 187-
5000	Mountain Chief, s, Utah*	10 0 0	—		0 4 0	0 4 0	Jan. 187-
10000	Pontgibaud, s-l, France†	20 0 0	29	27 29	25 19 11	0 11 11	June 1878
100000	Port Phillip, g, Clunes*†	1 0 0	⅝	½ ⅝	1 10 0	0 1 0	Jan. 1878
54000	Richmond Consols, s, Nevada*†	5 0 0	9	9 9¼	6 1 6	0 10 0	Aug. 1878
40000	Santa Barbara,* g, Brazil	0 10 0	1½	1⅜ 1⅝	0 4 9	0 1 0	April 1878
120000	Scottish Australian Mining Co.*†	1 0 0	2	1¾ 2	15 per cent.		May 1878
30000	Scottish Austral. Mining Co., New	0 10 0	⅞	¾ ⅞	15 per cent.		May 1878
12500	Sierra Buttes, g, California*†	2 0 0	1¾	1½ 1¾	1 18 0	0 2 0	Oct. 1877
60000	South Aurora, s, Nevada*	5 0 0	¾	⅛ ¼	0 14 2	0 2 0	Nov. 187-
£253000	St. John del Rey*† (£5 stock & multiples dealt in)			280 290	½ year. 17½ p. ct. for June		1878
20000	Tolima, g, s* So. America	5 0 0	—		0 11 6	0 6 6	May 1874
25000	Victoria (London)*, g, Australia	1 0 0	¾	⅝ ¾	0 12 6	0 0 7½	Jan. 1878
15000	Western Andes, s,* New Granada	5 0 0	—		0 12 0	0 12 .	July 1876
91000	W. Prussian (5500 pref. sh. 10l. pd)	10 0 0	11	10½ 11	1 2 0	0 4 0	July 1878

NON-DIVIDEND FOREIGN MINES.

Shares	Mines.	Paid.	Last Pr.	Clos. Pr.	Last Call.
12000	Argentine, g, Argentine Republic	5 0 0	—		Fully pd.
3000	Bellavista, s, Peru* (£10 shares)	10 0 0	—		Fully pd
30000	Blue Tent, hyd., California	5 0 0	3	2¾ 3	Fully pd.
49935	Chontales, g, s, Nicaragua*†	2 0 0	⅝	½ ⅝	Fully pd.
16000	Condes of Chili, s-l	5 0 0	—		Fully pd.
20000	English Australian, g, Victoria*	1 0 0	⅝	⅜ ⅝	Fully pd.
35000	Excelsior Hydraulic Gold Washing Co., California*	6 0 0	—		Dec. 1871
100000	Exchequer, g, s, California*†	1 0 0	⅜	⅛ ⅜	Fully pd.
40000	Holcombe Valley, g,* California	1 0 0	—		Fully pd.
8000	Hornachos,* s-l, Spain	10 0 0	14	13 14	Fully pd.
12000	Hultafall,* l, bl, Orebro, Sweden	5 0 0	4½	3½ 4½	Fully pd.
12000	Hunter Consolidated, s-l, Utah	10 0 0	—		Fully pd
20000	Imperial Brazilian Collieries, Brazil*	5 0 0	—		Fully pd.
100000	I. X. L., g, s, California*	1 0 0	¼	⅛ ¼	Fully pd
50000	Javali, g, Nicaragua*	2 0 0	9s.	7s. 9s.	Fully pd
3500	La Manche, l, Newfoundland	10 0 0	—		Fully pd.
12000	Lanestosa,* l, s, Viscaya, Spain (£2 shares)	1 15 0	—		Mar. 1876
75000	Malabar, g, Colombia* (67165 issued)	1 0 0	¼	⅛ ¼	Fully pd.
40000	Malpaso, g, Colombia* (7400 pref. shares, fully paid)	1 0 0	⅜	¼ ⅜	Fully pd.
12000	Menzenberg, c, Honnef, Germany*	5 5 0	—		Fully pd.
4588	New Bensberg, i, l, Germany	5 0 0	—		Nov. 1876
66000	New Quebrada, c, Venezuela*	5 0 0	1¼	1⅛ 1¼	Fully pd.
20000	New Zealand Kapanga, g, Coromandel*	5 0 0	1⅛	1 1⅛	Fully pd.
3000	Oregon,* g, Oregon, U.S. (preference shares)	4 0 0	4	3½ 4	Fully pd
50000	Panulcillo, c, Chili*† (£80000 debentures)	4 0 0	¾	⅝ ¾	Fully pd.
8000	Pestarena United, g, Italy*†	3 0 0	6s.	4s. 6s.	Fully pd.
15000	Pitanqui,* g, Brazil (incl. 6000 sh. £1 fully paid)	0 5 0	⅜	¼ ⅜	Aug. 1878
25000	Placerville,* g q, California	2 0 0	2¼	2 2¼	Fully pd.
50000	Providencia and New Rosario, s, Mexico*	1 0 0	—		Fully pd.
40000	Ravenscliff, g, New Zealand; c, South Australia	1 0 0	—		Fully pd.
8000	Rica, g, Colombia* (40000 issued)	1 0 0	¼	⅛ ¼	Fully pd.
£2,181,000	Rio Tinto,* c, Huelva, Spain	Stock	63	61 63	Fully pd.
100000	Rossa Grande, g, Brazil*† (£1 shares)	0 19 0	⅛	⅛	July 1872
20040	Russia Copper, Orenburg and Ufa*†	10 0 0	—		Fully pd
35000	San Pedro, c, Chili*	2 0 0	—		Fully pd.
10000	Silver Plume, s, Colorado*	1 0 0	—		Fully pd.
30000	Tecoma, s, Utah*	10 0 0	⅝	⅜ ⅝	Fully pd.
43174	United Mexican, s, Mexico*†‡	20 0 3	4	3½ 4	May 1878
14000	Utah, g, s-l, Utah*	5 0 0	—		Fully pd
10000	Virneberg, c Rheinbreitbach, Germany* (£2 shares)	1 15 0	—		Jan. 1878
15000	Yorke Peninsula, c, South Australia	1 0 0	⅛	¼ ⅛	Fully pd.
40000	Yorke Peninsula, c, South Australia Preference	1 0 0	1⅛	¾ 1	Fully pd.

§ Have made calls since last dividend was paid.

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

	Closing Prices	
Argentine, 1868 6 per cent.	74½	75½
Bolivia, 6 per cent.	27	28
Brazilian, 1865, 5 per cent.	91	92
Chilian, 1866, 7 per cent.	97	100
City of Providence, 5 p.c. coupon bnds	101	103
Egyptian, Gov. preference	76	76½
Do., unified debt, scrip	56¾	57¼
Do., 7 per cent., V.M.L.	78	80
Do., per cent. guar.	83	85
Do., K. Daira Sanieh	59	60

	Closing Prices.	
Foreign and Col. Gov. Trust, 6 p. ct.	73	78
Do., 5 per cent., 2d issue	63	68
Do., 6 per cent., 3d issue	62	66
Do., 1872, 4th issue	61	65
Do., 1873, 5th issue	55	60
Peruvian, 1870, 6 per cent.	13½	14½
Do., 1872, 5 per cent	11¾	12¾
Russian, 5½ per cent. L. Mort.	—	
Spanish, Quicksilver Mort., 5 p. ct.	96	98
United States Mort. 6 per cent.	[illegible]	[illegible]

NON-DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk.	Clos. pr
40000	Aberdaunant, l, Llanidloes*	1 0 0	¾	½ ¾
2560	Aberllyn,* l, bl, Carnarvon	10 0 0	11	10 11
10000	Aberystwith,* s-l, Cardigan	5 0 0	—	
80	Albion, i, Cornwall	100 0 0	—	
7800	Alvig. & Burng.,* t, St. Aust.	3 0 0	1¾	1½ 1¾
12000	Assheton, l, Carnarvonshire*	5 0 0	1	¾ 1
50000	Ballycummisk,* c, Schull	2 0 0	—	
12000	Bedford Unit.,* c, Tavist. (1l. liab.)	0 1 0	¼	⅛ ¼
30000	Bettws y-Coed,* l (20,000 issued)	1 0 0	1⅜	1⅛ 1⅜
800	Blaen Caelan,* l, Cardigan	3 0 0	4¾	4½ 4¾
3937	Blue Hills, t, c, St. Agnes	3 16 6	¾	½ ¾
30000	Bodidris,* l, bl, Denbighshire	1 0 0	1⅜	1⅛ 1⅜
1000	Bollihope Vale,* s-l, Durham	5 0 0	—	
200	Botallack, t, c, St. Just‡	123 15 0	—	
2000	Bowden Hill,* mn	1 0 0	—	
6000	Bradwell Moss Rake	1 0 0	1	¾ 1
256	Browngelly, c, St. Neot	2 0 0	2½	2¼ 2½
50000	Cambrian,* s-l, c, Cardiganshire	2 0 0	3½	3¼ 3½
20000	Central Foxdale, l, I. of Man* (2l. sh.)	1 5 0	—	
10000	Central Van,* l, bl, Llanidloes	5 0 0	—	
5120	Clementina, l, Llanrwst*	1 0 0	1⅜	1¼ 1½
7500	Combellack,* t, Wendron	2 0 0	—	
6000	Combmartin, s-l, North Devon	0 7 0	⅛	⅛
24000	Court Grange, s-l, Cardiganshire	1 0 0	1⅛	1 1⅛
15000	Cwm Brwyno,* l, Cardigan	2 0 0	—	
15000	Cwm Dwyfor,* c, s-l, Wales	1 0 0	—	
5000	Ditto, 12½ per cent. pref.	1 0 0	—	
3000	Cwmystwith (New) [5l. shares]	4 0 0	—	
1[illegible]80	D'Eresby Cons., l, bl, Carnarvon	10 0 0	11	10 11
512	D'Eresby Mountain, l, bl, Llanrwst	20 0 0	85	75 85
2[illegible]000	Denbighshire Consolidated, l*	3 0 0	1¾	1¼ 1¾
12000	Derwent,* l, Durham	4 0 0	—	
10000	Dubby Syke, l, Durham*	0 15 0	—	
6144	East Caradon, c, St. Cleer‡	2 19 0	⅝	⅜ ⅝
4000	East Chiverton, l, Perranzabuloe	7 1 0	1⅝	1⅜ 1⅝
3000	East Craven Moor*, l, Pateley Bdge	10 0 0	10	9 10
6000	East Goginan, l, Cardigan	2 0 0	—	
8000	East Van, l, Llanidloes*	5 0 0	3	2½ 3
1722	East Wh. Lovell, t, Helston	9 1 0	½	¼ ½
20000	Elgar,* s-l, Cardiganshire	1 0 0	⅝	⅜ ⅝
10000	Frosterley,* l, Durham	1 0 0	1¼	1⅛ 1¼
4950	Gawton, c, Tavistock	4 5 6	⅜	⅛ ⅜
12000	Glan Clwyd,* l, Gwyddelwern	1 0 0	—	
14000	Glenroy,* s-l, Isle of Man	4 5 0	¾	⅝ ¾
10000	Glyn,* l, Llanidloes	2 0 0	¾	½ ¾
2000	Goginan, & Level Newydd, Card., l	2 10 0	—	
20000	Goreu,* s-l, Carmarthen	1 0 0	1	¾ 1
30000	Gt. E. Foxdale, l, I. of Man (1l. sh)	0 18 0	—	
12000	Great Holway,* l, Flintshire	5 0 0	5¼	4¾ 5¼
9500	Great Pant-y-Pydew, l, Holywell	2 0 0	—	
6000	Gt. Wheal Eleanor, t, North Bovey	1 17 6	2	1¾ 2
6000	Great Wheal Rodd,* s-l, Cornwall	0 10 0	1	¾ 1
10000	Harehope Gill,* l, Durham (£1 sh.)	0 5 0	—	
600	Hartington Moor,* carb. l, Derby	1 0 0	2	1½ 2
6400	Harwood,* l, Durham	0 15 0	—	
1024	Herodsfoot, l, near Liskeard†	8 10 0	4½	4 4½
18000	Hingston Down, c, Calstock*†	0 6 0	—	
5000	Hush Elsteddfod Minera,* l	2 0 0	—	
2500	Killaloe, sl, Tipperary‡	1 0 0	—	
5000	Killifreth, t, Chacewater	2 7 6	1	¾ 1
25000	Kingston Con., s-l, Stoke Climsland	1 0 0	—	
	Ditto, preference	1 0 0	1⅛	1 1⅛
12000	Ladywell,* l, Salop	2 10 0	1	¾ 1
12000	Ditto, 10 per cent. pref., 1l. each	0 10 0	⅝	½ ⅝
5000	Lead Era,* l, Mold	2 10 0	3	2½ 3
2500	Levant, c, t, St. Just	10 4 6	—	
1400	Lisburne Syndic.,* l, Cardigan	5 0 0	8	6 8
6000	Livingstone Consols, t, St. Agnes	0 10 0	1	¾ 1
5120	Lovell, t, Wendron	0 16 0	2	1½ 2
25000	Llanrhaiadr, l, Montgomery*	2 0 0	—	
30000	Llanrwst,* l, Carnarvon	2 0 0	3	2 3
24	Mawston,* l, South Wales	50 0 0	65	55 65
6000	Mediyn Moor, t, Wendron	2 9 10	—	
11000	Melyndw[illegible], l, Cardigan*	[illegible]	1¼	¾ 1¼
7000	Mid Devon Copper*	0 6 8	1¼	1 1¼
21000	Ditto	0 2 6	1	¾ 1
8000	Mineral Corp. of Great Britain*	10 0 0	11	10 11
11000	Monydd Gorddu, l, Cardigan* (Red.)	5 0 0	2½	2¼ 2½
12000	Morfa Du, z, g, s, Anglesea	0 15 0	⅞	⅝ ⅞
25000	Nant-y-Ronen, s-l, Cardigan*	1 0 0	—	
15000	Nascent Copper*	1 0 0	—	
4768	New Bronfloyd,* l, Cardigan (5l. sh.)	3 16 0	4½	4⅜ 4½
8000	New Dolcoath, t, c, Camborne*	3 0 0	1¼	1⅛ 1¼
20000	New East Foxdale, s-l, Isle of Man	0 15 0	—	
1492	New Hendra, t, Breage	3 9 0	—	
8200	New South Merllyn, l, Flint*	2 10 0	½	¼ ½
3500	New Tincroft,* t, Lelant	0 0	3	2½ 3
5000	New Wheal Emma, c, Buckfastleigh	2 0 0	—	
4000	North Cornwall,* l, Cornwall	5 0 0	5⅜	5⅛ 5⅜
30000	North Laxey,* Isle of Man	1 0 0	4s.	2s. 4s.
2000	North Levant, t, c, St. Just‡	12 16 0	1	¾ 1
50000	North Molton, c, mn, i, Devon	1 0 0	1	1
20000	North Prince Patrick,* l, Holywell	1 0 0	—	
5936	North Treskerby, c, St. Agnes	5 17 10	—	
6400	Oola Hills,* s-l, Limerick	5 0 0	—	
12000	Pandora,* l, Carnarvon	2 0 0	1	¾ 1
6000	Park Valley,* s-l, North Devon	0 4 0	1	¾ 1
6000	Parracombe, s l, Devon	0 5 0	⅝	½ ⅝
16923	Parys Mountain,* c, Anglesea	3 0 0	⅜	4s. 6s.
12000	Phoenix, & W. Phoenix, t, c, Link.§	5 7 3	2	1½ 2
4000	Pateley Bridge, l, Yorkshire	5 0 0	4¼	3¾ 4¼
7000	Picton,* s-l, Holywell, fully paid	1 0 0	5	5
12000	Plynlimmon, l, Llanidloes*	2 0 0	6s.	4s. 6s.
10000	Port Nigel,* s-l, Carnarvonshire	2 0 0	⅜	¼ ⅜
2000	Prideaux Wood, t, Llanivery	5 0 0	—	
5182	Prince of Wales, c, Calstock‡	2 6 0	1s.	6d. 1s.
6000	Relistian Consols, c, Gwinear	0 10 0	⅝	½ ⅝
15000	Rookhope, l, Durham*	1 10 0	¾	⅝ ¾
4200	Snowbrook, s-l, Montgomery	5 0 0	—	
[illegible]000	So. Cwmystwith, l, Cardiganshire	2 0 0	3	2½ 3
4000	South Darren, l, Cardigan*	1 10 0	2¼	1⅞ 2⅛
30000	South de Eresby Mountain, l	1 0 0	1¾	1⅝ 1¾
512	South Dolcoath, c, t, Redruth	3 5 0	—	
5000	So. Molton Cons., s-l, No. Devon	3 6	—	
18000	South Roman Gravels, l*	1 10 0	¼	⅛ ¼
6000	South Roskear, t, c, Camborne	7 5 0	—	
6000	South Tolcarne, t, c, Camborne	2 5 6	¼	⅛ ¼
987	South Wheal Crofty, c, Illogan	40 0 10	5	4 5
6000	St. Lawrence, Amal., l, Flintshire*	2 0 0	—	
10000	St. Patrick, l, Halkin, Holywell*	1 0 0	1¼	1 1¼
6000	Success, &c., l, Derb. (12,000l. called)	1 0 0	—	
16000	Sunnyside,* l, Durham	2 0 0	—	
30000	Talybont, s-l, Cardiganshire	1 0 0	1¼	1 1¼
6400	Teesdale,* l, Durham	1 0 0	½	⅜ ½
14000	Teign Valley, l, bar., Bridford	1 0 0	—	
10000	Temple, l, Cardigan*	1 0 0	—	
10000	Tolgus Consols,* c, Redruth	5 0 0	3¾	3¼ 3¾
5000	Treleigh Wood, t, Redruth	6 1 0	—	
12000	Trethellan, s-l, Crantock*	2 0 0	—	
640	Truro*, l, Nerquis, Flintshire	10 0 0	—	
10000	Tyn-y-Fron,* l, Cardigan	1 0 0	1⅜	1⅜ 1⅝
1000	Vaughan*, l, Cardiganshire	10 0 0	—	
18000	Victor,* l, Flintshire (£1 share)	0 5 0	—	
12000	West Assheton, l, Carnarvon	1 0 0	⅞	⅝ ⅞
6000	West Basset, c, Illogan†‡	6 13 4	⅞	⅝ ⅞
5500	West Combmartin, s-l, North Devon	1 0 0	—	
7000	Ditto	0 2 6	—	
3000	W. Craven Moor, l, Pateley Bridge*	10 0 0	10	9 10
5000	West Godolphin, t, c, Breage	2 16 0	1¼	1 1¼
12000	West Goginan,* Cardiganshire	2 0 0	⅜	⅛ ⅜
10000	West Llangynog, s-l, Montgomery	2 0 0	—	
3000	West Mary Ann, l, Menheniot	0 12 6	¾	½ ¾
50000	West Milwr, s-l, Flint	1 0 0	—	
5000	West of England Granite Company	2 0 0	—	
20000	West Pateley Bridge, l, Yorkshire	1 0 0	2⅛	1½ 2
1000	West Roskear, t, s-l, bl, c, Camborne	5 10 0		
12000	West Tankerville,* l, Salop	3 0 0	⅜	¼ ⅜
3000	Ditto, 15 per cent. pref.	3 0 0		
3000	West Wheal Peevor, t, Redruth	0 10 0	—	
6000	Wheal Agar, c, Illogan	12 0 0	4	3½ 4
512	Wheal Basset, c, Illogan‡	28 2 6	3	2 3
6000	Wheal Coates, t, St. Agnes	2 0 0	—	
2635	Wheal Comfort, c, Gwennap	1 7 0	—	
6000	Wheal Crebor, c, Tavistock	4 3 0	¾	½ ¾
5179	Wheal Grenville, c, Camborne	4 1 6	2⅛	1½ 2
12300	Wh. Mary Hutchings,* t, Plympton‡	1 18 6	2⅛	2 2⅛
13000	Wheal Russell, c, Tavistock	3 1 6	—	
4096	Wheal Uny, t, c, Redruth	14 0 6	1	½ ¾
2324	White Cliff,* l, Llanrwst	5 0 0	—	
25000	Wicklow, c, sul, i, Wicklow	2 10 0	—	

b, blende; cl, coal; c, copper; g, gold; l, lead; s, silver; sl, slate; s-l, silver-lead; t, tin; z, zinc.

* Limited Liability Companies; † quoted on the Stock Exchange; ‡ have paid dividends.

IRON AND COAL COMPANIES.

Shares.	Company.	Paid.	Prices.	
£100	Abbot, John, and Co. [L.]	£75 0 0	17	16 dis.
15	Albion Steel and Wire Co. [L.]	14 0 0		—
5	Alltami Colliery Co. [L.]	5 0 0	3	3½
100	Ashbury Co. [L.]	90 0 0	55	60 dis.
3	Bagnall, John, and Sons [L.]	3 0 0	⅝	1⅛
10	Benhar Coal Co. [L.]	10 0 0	5¼	5¾
50	Bilbao Iron Ore Co. [L.]	50 0 0	23	25
10	Bilson & Crump Meadow Coll. Co. [L.]	10 0 0	4½	5
4	Blaen Cwmbach Coal Co. [L.]	4 0 0		—
50	Blaenavon Iron and Steel Co. [L.]	50 0 0		—
100	Bolckow, Vaughan, and Co. [L.]...A	50 0 0	9	11 pm.
50	Bowling Iron Co. [L.]	50 0 0		—
50	Britannia Ironworks [L.]	25 0 0		—
50	Brown, Bailey, and Dixon [L.]	40 0 0	10	9 dis.
100	Brown, John, and Co. [L.]	70 0 0	11½	11 dis.
5	Cakemore Colliery Co. [L.]	5 0 0	5¼	5¾
100	Cammell and Co. [L.]	80 0 0	9	8½ dis.
20	Cannock and Huntington Coal [L.]	10 0 0	9	8½ dis.
10	Cardiff & Swansea St. Coal Co. [L.]	9 0 0	⅛	⅜
10	Cardigan Steel and Wire Co. [L.]	8 10 0		—
10	Central Swedish Iron and Steel [L.]	10 0 0	1	2
5	Chapel House Colliery	5 0 0	3	3¼
50	Charlton Iron Co. [L.]	50 0 0	8	10
50	Chatterley Iron Co. [L.]	45 0 0	35	33½ dis.
10	Chillington Iron Co. [L.]	10 0 0	3	4
10	Consett Iron Co. [L.]	7 10 0	10½	11 pm.
1	Consett Spanish Ore [L.]	1 0 0	¼	⅛ dis.
50	Cooke, William, and Co. [L.]	40 0 0	34	32 dis.
20	Darlington Iron Co. [L.]	12 10 0	½	¾
50	Davy Brothers [L.]	22 10 0	1	2 pm.
5	Diamond Fuel Co. [L.]	5 0 0		—
23	Ebbw Vale Co. [L.]	20 0 0	14	12 dis.
100	Fox, Samuel, and Co. [L.]	80 0 0	30	31
10	General Mining Ass. [L.] (£1 returned)	9 0 0	2½	3⅛
20	Great Western Coal Co. [L.]	17 0 0		—
2	Gwyngwillim Colliery Co. [L.]	2 0 0		—
15	Hopkins, Gilkes, and Co. [L.]	11 0 0	10	9 dis.
50	Knowles, Andrew, and Sons [L.]	17 0 0	3¼	3 dis.
10	Llay Hall Coal, Iron, & Firebrick [L.]	10 0 0	3	1 dis.
5	Littledean Woodside Coll. Co. [L.]	5 0 0		—
50	Llynvi, Ogmore, & Tondu Co. [L.]	50 0 0	5	5¼
10	Lydney and Wigpool Iron Ore [L.]	8 5 0	11	10 dis.
10	Marbella Iron Ore Co. [L.]	10 0 0	7½	7 dis.
6	Mersey Steel and Iron Co. [L.]	6 0 0		—
10	Midland Iron Co. [L.]	5 0 0	1¼	1 dis.
5	Mold Argoed Colliery Co. [L.]	5 0 0	3	2¼ dis.
10	Monkland Iron and Coal Co. [L.]	10 0 0	7½	7 dis.
4	Mwyndy Iron Ore [L.]	3 10 0	2¼	2 dis.
100	Nant-y-Glo and Blaina (8 p. c. pref.)	100 0 0	23	26
3	Nerbudda Coal and Iron [L. & Red.]	2 0 0	1	1¼ pm.
20	New Sharlston Collieries [L.] Pref.	20 0 0	18	16 dis.
10	Newport Abercarn Coal Co. [L.]	10 0 0	2¼	2¾
10	Northmptn. Coal, Iron & Wagon [L.]	8 0 0		—
10	Northfield Iron Co. [L.]	8 10 0	¾	7¼ dis.
1	Norton Green Coal Co. [L.]	1 0 0		—
25	Palmer's Shipbuilding and Iron [L.]	25 0 0	15½	15 dis.
100	Parkgate Iron Co. [L.]	65 0 0	15	13 dis.
20	Patent Nut and Bolt Co. [L.]	14 0 0	7	7½ pm.
20	Patent Shaft and Axletree [L.]	10 0 0	1	¾ dis.
20	Pelsall Coal and Iron [L.]	17 10 0	13	12 dis.
50	Phœnix Bessemer Co. [L.]	40 0 0		—
50	Rhymney Iron Co. [L.]	50 0 0	17½	18½
10	Richards and Co. [L.]	10 0 0		—
10	Sandwell Park Colliery Co. [L.]	10 0 0	15½	16
10	Ditto New	5 0 0	3⅝	4 pm.
100	Shotts Iron Co. [L.]	100 0 0	90	92
100	Sheepbridge Iron and Coal [L.]	55 0 0	15	14 dis.
50	Silkstone & Dodworth Cl. & Iron [L.]	33 0 0	24	23 dis.
20	Skerne Ironworks [L.]	20 0 0	15	14½ dis.
50	Somorrostro Iron Co. [L.]	50 0 0		—
25	South Wales Coal Co. [L.]	21 0 0	6¼	7⅛
100	Staveley Iron and Coal Co. [L.]	60 0 0	13	14 pm.
100	Ditto ditto New	10 0 0	2⅜	3¾ pm.
10	Swansea Valley Steam Coll. Co. [L.]	6 0 0		
100	Thames Iron Company	100 0 0		—
50	Tredegar Iron and Coal Co. [L.]	20 0 0	11	10 dis.
25	Ditto B. shares	25 0 0	21	23
20	Ulverston Mining Co. [L.]	12 0 0	5	3 dis.
10	Vancouver Coal [L.]	6 0 0	1½	1¼ dis.
100	Vickers, Sons, & Co. [L.]	100 0 0	30	35 pm.
50	Welsh Ironworks Co. [L.]	50 0 0		—
25	W. Cumberland I. and Steel [L.]	20 0 0	8	10 dis.
10	West Mostyn Coal [L.] (12 p.c. pref.)	5 0 0		—
5	West Swansea Colliery Co. [L.]	5 0 0		—
10	Whitehaven Iron Co. [L.]	10 0 0		—
100	Wigan and Whiston Coal Co. [L.]	70 0 0		—
100	Wigan Coal and Iron Co. [L.]	75 0 0		—

WAGON COMPANIES.

10	Birmingham Wagon Co. [L.]	10 0 0	15½	16
10	Ditto, 2nd issue	4 0 0	1¼	1⅜ pm.
10	Ditto, pref., 6 per cent.	10 0 0	11⅝	12
20	British Wagon Co. [L.]	10 0 0	1⅛	1⅝ pm.
10	Gloucester [L.]	10 0 0	8¼	8¾
10	Ditto, 5th issue	5 0 0	1¼	1½ dis.
10	Met. Rail. Car. and Wagon Co. [L.]	5 0 0	2½	3 pm.
5	Ditto, pref., 6 per cent.	2 0 0	⅛	¼ pm.
10	Midland	10 0 0	5	5¼ pm.
20	North Central Wagon Co.	20 0 0	22	23
5	Rail. Car. [L.] (Oldbury)	5 0 0	5	5¼
5	Ditto, pref., 6 per cent.	5 0 0	4⅞	5⅛
20	Sheffield Wagon Co. [L.]	15 0 0	1⅛	2 pm.
10	Yorkshire Wagon Co. [L.]	10 0 0	3⅝	4 pm.

TELEGRAPH COMPANIES.

"St."	Anglo-American	100 0 0	61	61½
10	Brazilian Submarine	10 0 0	6¾	7
20	Direct United States Cable	20 0 0	13	13¼
10	Eastern	10 0 0	7⅜	7⅝
10	East. Exten., Australia and China	10 0 0	7¼	7½
10	Great Northern	10 0 0	8¼	8¾
25	Indo-European	25 0 0	20½	21½
10	Mediterranean Extension	10 0 0	3	3½
8	Reuters	8 0 0	10	11
Stk.	Submarine	100 0 0	216	221
10	West India and Panama	10 0 0	2	2¼
20	Western and Brazilian	20 0 0	3½	4¼
$1000	Western Union, 7 per cent. Mort. Bonds	$1000	114	118

MISCELLANEOUS.

Stk.	Atlantic and Great Western Leased Lines, Rental Trust	100 0 0	42	45
25	Australian Agricultural	21 10 0	79	81
25	Austral. Mort. Land and Finance [L.]	5 0 0	6¼	6¾
10	Avonside Engine [L.]	7 0 0	7	8
Stk.	Baltimore and Ohio, 6 per cent.	100 0 0	107	109
10	Brighton Aquarium [L.]	10 0 0	8	9
Stk.	Cent. of New Jersey Con. Mort.	100 0 0	88	90
Stk.	Cent. Pacific of Calif., 1st Mort. 6 p.c.	100 0 0	108	109
25	City of London Real Property [L.]	12 0 0	2¼	2¾
5	Diamond Rock Boring	4 10 0	3¾	3¼
15	English and Foreign Credit	8 0 0		—
16	Fore Street Warehouse [L.]	14 0 0	10½	11½
15	Foster, Porter, and Co. [L.]	10 10 0	20½	21½
5	Gen. Phos. & Chem. Works Co. [L.]	5 0 0		—
1	Greenhill [L.]	1 0 0		—
5	Kit Hill Tunnel [L.]	1 0 0		—
17	Hudson's Bay Company	17 0 0	11	11¼
10	Huntington Copper and Sul. Co.	9 0 0	8¼	7¾
Stk.	Illinois Central, $100 shares	100 0 0	82½	83½
Stk.	Illinois & St. Louis Bridge, 1st Mort.	100 0 0	73	78
Stk.	Ditto, 2nd Mort., 7 per cent.	100 0 0	32	37
Stk.	Illinois Cent. Sinking Fund, 5 p. cent.	100 0 0	99	101
Stk.	Ditto, 6 per cent.	100 0 0	109	111
7½	Imperial Credit [L.]	7 10 0	7⅜	7⅝
—	Ditto, Surplus Certificate	—	3⅛	7
Stk.	Lehigh Val. Con. Mort., A, 6. p. cent.	100 0 0	101	103
10	Milner's Safe [L.]	10 0 0	9	10
25	National Discount [L.]	5 0 0	10	10½
Stk.	N. Cent. Rail. Con. Mort., 6 per cent.	10 0 0	84	86
10	Pawson and Co. [L.]	8 0 0	¾	1¼
50	Peninsular and Oriental Steam	50 0 0	39	41
Stk.	Pennsyl. Gen. Mort. 6 p. cent., 1910.	100 0 0	107½	108½
Stk.	Ditto, Con. Sink. Fund, 6 p. ct., 1905	100 0 0	96	97
Stk.	Scottish Aust. Investment Company.	100 0 0	200	205
Stk.	Ditto, 6 per cent. Preference	100 0 0	122	127
10	Silber Light (ord. sh.)	10 0 0		—
20	Suez Canal shares	20 0 0		—
12	Telegraph Construc. & Mainte. [L.]	12 0 0	31	[illegible]
5	Ditto, Second Bonus Three per Cents	5 0 0	2⅜	[illegible]
10	Tharsis Sulphur and Copper Co.	10 0 0	23	24
Stk.	Union Pacific Land Grant, 1st Mort.	100 0 0	105	107
Stk.	Union Pacific Railway, 1st Mort.	100 0 0	107	109

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